

SMART PARTS

SMART parts for SMART repairs & service

Bennetts

www.bennetts.com

MidKnight Black Nitrile Gloves

available NOW from your local IFA Member



Great features in this issue include:

WIN a top Facom tool worth over £600! page 8

Focus on Engine Management Parts pages 12-16

Technical Parts - A/C Systems page 17

Hot Italian Car Parts Prices pages 6-7

Top Technical Tips page 10

Trade News page 2



WORTH OVER £600.00!

Facom® DF.20-100 Brake & Clutch Bleeder System

page 8

WIN* with SMART PARTS

MidKnight Black Nitrile Gloves from Alba Diagnostics page 8

The No.1 selling gloves in the US Automotive Aftermarket:

- 20% Thinner at the fingertips for excellent grip and tactile responsiveness
- 34% Stronger than other Nitrile gloves - they don't tear like the others!



OE quality throughout: all parts meet or exceed specifications of EC Block Exemption standards

Bury St Edmunds	01284 766166
Cambridge	01223 416644
Hatfield	01707 257771
Hitchin	01462 442289
Huntingdon	01480 459512
Ipswich	01473 713551
Kings Langley	01923 262252
Leighton Buzzard	01525 378084
Letchworth	01462 480276
Shrewsbury	01743 467226
St Albans	01727 855879
Stevenage	01438 312669
Telford	01952 415700
Tottenham	0208 365 0033
Watford	01923 235601
Welwyn	01707 334411

To receive the special offer prices in this leaflet please quote "Smart Parts Issue 17" when ordering

If you would like to be kept up to date with promotional offers via e-mail, please send your e-mail address to sales@bennetts.com

Issue 17
Offers end
31 August '09



TECHNICAL PARTS SPECIAL

Don't Miss Your Chance of a Ferodo Driving Experience!



Don't miss your chance to win one of Ferodo's places at the Rockingham Time Attack driving experience*. Remember to enter Ferodo's fantastic prize draw before the

closing date of Friday 7th August. Ask your local IFA Member for an entry form and answer three simple questions, for your chance to win.

The form with your answers and details completed must be returned to your local IFA Member by 7th August 2009.. Good Luck!

*Terms & Conditions apply. No purchase necessary. To participate in the 'Time Attack' driving day you must be over 21 years of age.



SMART PARTS Issue 15 Competition Winner

Andrew Webb of Hitchin Audi, a customer of Bennetts Letchworth branch, scooped an Apple iPod Touch 8GB in our **SMART PARTS** 15 competition, when his correct entry was the first to be drawn. Correct answers are shown below.

Remember to enter the competition on page 8 of this issue of **SMART PARTS** for your chance to win a **Facom DF20-100 Brake & Clutch System Bleeder**.

Andrew Webb (right) of Hitchin Audi receives his prize from Chris Beck, Bennetts's Letchworth Branch Manager



ANSWERS TO **SMART PARTS** Issue 15 COMPETITION:
1. 5 YEARS, 2. OVER 4300,
3. 2 METRES

Legislation Allows National Flags On GB Number Plates

April saw a Government amendment to the 'Road Vehicle (Display of Registration Marks) Regulations 2001'. Under the new rules, already in force, motorists in England, Wales and Scotland can display the Union Flag, Cross of St George, Saltire or Red Dragon.

In addition one of the following identifiers can be included:

Great Britain or GB – United Kingdom or UK
England or Eng – ENGLAND or ENG
Scotland or Sco – SCOTLAND or SCO
Cymru or Cym – CYMRU or CYM - Wales or WALES



Geoff Hoon (while Secretary of State for Transport) said "The display of our national flags is a healthy expression of the pride we have in our country. It is right that motorists are now able to celebrate this pride by displaying flags on their number plates..."

The regulations do not apply to Northern Ireland where the only legal option is the European Flag.

Motorists displaying national flags and identifiers will still need to display the conventional oval sticker when travelling in Europe.

All flags are printed onto the reflective & supplied in 10s. Full details on www.bestplate.com.



ADF Chief Exec Calls Use of Parts Clubs "Shortsighted"

Automotive Distribution Federation (ADF) Chief Executive Brian Spratt has 'taken a swipe' at garages that use parts clubs describing them, amongst other things, as "shortsighted".

Calling for garages to work more closely with independent motor factors at a seminar recently, he asked that garages face up to the fact that buying from a dealer's parts department or parts club is putting the independent garage's own existence in jeopardy.



Recession Fails to Halt Parts Innovation in Aftermarket

New products demonstrate the independent aftermarket is thriving. Trupart have a new range of Flat Blade Wipers (page 19), BGA have new Timing Chain Kits (page 3) and Valeo have new applications across all their product groups, including Clutch (page 4) and Wipers (page 19). Banner have radically made over their Power Bull and Starting Bull Batteries (page 16).

Talk to your local IFA Member about how aftermarket innovations can help your business.



New Behr Hella Service A/C Parts Available Now

BHS (Behr Hella Service) have just extended their range of car air conditioning parts to include a wide range of new applications:

59 New **compressor** applications including Alfa Romeo 159, BMW X5 & MINI One, Kia Ceed, Mercedes-Benz A & C Class, PSA/Toyota C1/107/Aygo, Renault Laguna III, VW Touareg

80 New **condenser** applications including BMW 1 Series E87, Smart City Coupe W450, VW Tiguan, Honda Accord, Subaru Impreza, Toyota Yaris, Chrysler PT Cruiser

17 New **condensor fan** applications including Hyundai Accent & Elantra, Kia Cerato & Carens

2 New **expansion valve** applications for BMW X3 (E83), Citroën Xsara

20 New **radiator fan** applications including Vauxhall Corsa C, Hyundai Accent, Atos, Getz

1 New **hose assembly** application for Ford Mondeo III

Application details and cross-references are available from your local IFA Member.





BGA TIMING CHAIN KITS



**NEW!
AT
BGA**

Many modern cars now use timing chains instead of belts, but they still need to be replaced

REASONS FOR FAILURE

- Chains wear and stretch
- Guide contact surface wears
- Worn out tensioners
- Worn sprockets

INCORRECT TIMING LEADS TO PROBLEMS:

- Overheating - possible head gasket/valve failure, etc
- Incorrect emission levels
- Increased fuel consumption
- Poor performance
- Lumpy running at idle

BGA Timing Chain Kits offer you the most comprehensive package available

- OE quality components, BER certified
- Full kits, including bolts, sprockets & sensors where required & technical data
- Largest range of modern timing chain kits in Europe (covers more than 1000 applications)
- Many unique-to-BGA references, e.g. MINI, SMART, Ford 2.0/2.2/2.4 Duratorq engines, Ford 2.0 Duratec engines, Vauxhall 2.0 Diesel engines, etc
- Associated parts available - gaskets, oil seals, valves, camshafts, hydraulic lifters

Technical Tips:

- Depending on engine application, design & size, the timing chain/ associated components should be replaced at between 65,000 and 150,000 miles
- Timing chains typically do not need to be 'serviced' but certain engine applications require maintenance or a check on the condition of guide rails and tensioners
- Smaller petrol engines have simplex chains, larger engine sizes/diesel applications have duplex or triplex chains

The British Gasket Group is a world leader in gasket and oil seal manufacturing. The group has been an Original Equipment supplier since 1929 when the company was formed and now boasts an impressive list of customers such as GM and Ford.

BGA is the aftermarket division of the BGG and is totally dedicated to servicing this sector, with a product range consisting of over 20,000 references covering Gaskets, Head Bolts, Valve Train, Timing Chain Kits and Pulleys.

Valeo: The World's Number One in Clutch Manufacture

Valeo Clutch

- Valeo are the **world's number one** clutch manufacturer
- Valeo produce one in three kits provided to VMs
- Valeo produce over 16 million kits annually
- Valeo have no re-manufactured kits in the range
- One third of the Valeo range covers Asian applications
- Valeo is committed to bringing the latest clutch kits to the marketplace
- **Valeo Service parc coverage stands at 98%**



New Valeo Product Launch: CMC (Clutch Master Cylinder)

Soon to be launched by Valeo, CMC (Clutch Master Cylinders) work in conjunction with the Concentric Slave Cylinder (CSC). The CMC is the main fluid reservoir for CSC operation.

The typical replacement rate for CMCs is 2% per year

Clutch slip can be a symptom of leaking fluid onto the plate, so a systematic check of the CMC is highly recommended.

The all new Valeo Passenger Car Clutch Catalogue contains the new CMCs and new product lines (see inset).



NEW TO RANGE Clutch Kits:

- | | |
|----------------------------|-----------------------------------|
| Fiat 500 1.2 | Peugeot 207, 308 1.6Turbo, 2.0HDI |
| Ford Mustang 4.0 | Vauxhall Astra H 1.7, 1.9CDTi |
| Ford Mondeo 1.8TDCi 2007> | VW Tiguan 2.0TSi |
| Ford Transit Connect 2006> | Volvo C30 1.6 VCT |

NEW TO RANGE Dual Mass Flywheels:

- | | |
|----------------------------|--------------------------|
| Alfa Romeo MiTo 1.6 MJTD | Renault Clio III 2.0 16v |
| Fiat Bravo II 1.6 MJD | Vauxhall Zafira 1.7CDTi |
| Ford Mondeo 1.8 TDCi 2007> | |

NEW TO RANGE CSC: (Concentric Slave Cylinder)

- | | |
|------------------------------------|----------------------------|
| Alfa Romeo 159, MiTo | Vauxhall Corsa III 1.7CDTi |
| Ford Mondeo 2.0 16v, 2.0TDCi 2007> | Volvo C30 1.6i |
| Renault Clio III 1.2 16v | |

NEW TO RANGE Solid Flyheel Conversion Kits:

- | | |
|-------------------------------|--------------------|
| BMW 3 Series E46 | Toyota Avensis D4D |
| Mercedes-Benz A Class 1.7 CDI | |

For further information on Valeo products/services and to access Valeo's Technical Bulletins Library, please log on to www.valeoservice.com/html/unitedkingdom/en



Xstream[®]

Antifreeze & Coolant



SAFEGUARDED
WITH
BITTERING
AGENT



Dependable Protection.

Xstream[®] Protection for your engine

The original from:
BASF
The Chemical Company

- Protects against corrosion, erosion, over-heating & freezing
- Officially approved by Audi, BMW, Mercedes Benz, Opel/GM, Porsche, Saab, Seat, Skoda, VW & more
- Select the right grade with confidence, using Comma's Application guides

Coolants

OE QUALITY



FREE*
three pack stand
worth over £100
with **only three** of any
Comma 20ltr or
Planet 20/25ltr oils
including two
Fully Synthetic oils

Almost 70% of passenger cars and over 30% of LCV applications in Comma's Workshop Application Guide now require an engine specific lubricant (including those requiring them for warranty reasons).

Workshops must stock, or have rapid access to, a wider than ever range of oils. Once just two or three grades could be held in large barrels or bulk but those days are long gone. Now best practice is to hold 5 litre and, increasingly, 20 litre/25litre packs that flexibly allow all bases to be covered.

SPECIAL OFFER
Limited time only

FREE 20/25 litre Oil Stand worth over £100 with only three of any Comma 20ltr or Planet 20/25ltr oils including two Fully Synthetic oils

Comma 3 Pack 20ltr/25ltr Stand

- Staggered shelving - stops drips falling onto product below
- Self assembly
- Solid construction
- **FREE** Comma Application Guide attached to stand for easy reference
- **FREE** Three drum taps
- Multiple stands bolt together
- Suitable for coolant & screenwash

TECHNOLOGY AND POWER COMBINED
Planet



* Offer ends 31st August 2009. Available while stocks last

Oil Stand Offer

OE QUALITY

Hot prices **and** you get what you see, not a lesser alternative

Steering & Suspension

Power Rack

1100cc 99>03 (Body - not electrics)

AMK TS956 **£51.99**

Rear Coil Spring

900cc 06/98>

KYB RA5281 **£19.99**



Braking

Front Pads

1.1 01/98>

Ferodo Premier FDB749 **£17.50**

Ferodo FSL FSL749 **£12.50**

Front Discs (pair)

900cc 06/98>10/00

Brake Eng 952890 **£13.99**



Our Precision, Your Advantage



TECHNOLOGY AND POWER COMBINED

Planet



Refer to Planet Application Guide for exact model & engine application

Oils

Application	Fuel	Comma	Planet
1.1 98>01	Petrol	Eurolite	10W40

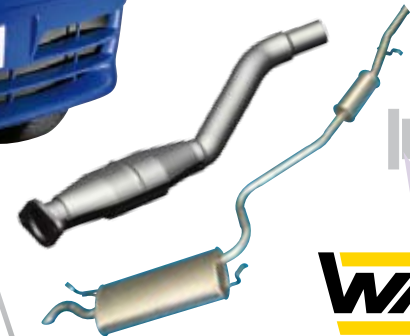


Transmission

Clutch Kit (3 piece)

1.1i 03/98>08/00

Valeo 801422 **£52.50**



Exhaust Systems

Catalytic Converter

1.1i 05/98>

EEC F18040 **£61.50**

Rear Box

1.1i 03/98>02/00

Walker 22085 **£46.50**

Hot prices *and* you get what you see, not a lesser alternative

Steering & Suspension

Power Rack

1.8i (TRV)	AMK	TS1127	£159.99
------------	-----	--------	----------------

Front Coil Spring

1.9 JTD 06/94>00	KYB	RC5842	£27.99
------------------	-----	--------	---------------



Our Precision, Your Advantage



Braking

Front Pads

1.6 i.e. 10/94>12/96 (ATE)	Ferodo Premier FDB1040	£24.99
	Ferodo FSL FSL1040	£17.99

Front Discs (pair)

1.8 16v T Spark 03/97>01/01 (Vented)	Brake Eng 955186	£44.99
--------------------------------------	------------------	---------------

Rear Calipers

1.6 03/97>01/01 (ATE)	Brake Eng CA1525/CA1525R	£49.99
-----------------------	--------------------------	---------------



TECHNOLOGY AND POWER COMBINED

Planet



Refer to Planet Application Guide for exact model & engine application

Oils

Application	Fuel	Comma	Planet
1.8 T Spark 98>00	Petrol	EuroLite	5W40
1.9 JTD 98>00	Diesel	Syner D	5W40



Transmission

Clutch Kit (3 piece)

1.8i T Spark 12/96>06/01	Valeo 801347	£74.99
--------------------------	--------------	---------------



Exhaust Systems

Catalytic Converter

1.8i 16v T Spark 01/97>	EEC AR8006	£59.99
-------------------------	------------	---------------

Rear Box

1.6i 16v T Spark 03/97>10/01	Walker 21845	£47.99
------------------------------	--------------	---------------

Alfa 146

OE QUALITY



WORTH OVER £600.00!

WIN* with SMART PARTS Facom® Brake & Clutch Bleeder System (DF.20-100)

Generously donated to SMART PARTS by Facom

- Turns brake bleeding into a genuine one man operation
- ABS compatible - automatically maintained below 2 bar
 - Stand alone - uses vehicle's own 12v battery supply
 - Complete with universal cap & cap set in case
 - Internal reservoir with min/max levels
- Fully portable

Correctly answer the 3 questions below for your chance to win* (all answers in this issue):

1. In what size bottle do Four Seasons sell R134a A/C refrigerant?
2. What does 'EGR' stand for in engine management?
3. How much greater service life can Ferodo Premier Pads deliver compared to other well known 'Aftermarket' brands? *Terms & Conditions apply (see below)



SMART PARTS Issue 17 Competition Terms & Conditions: Closing date for entries 31.08.09. The draw will take place on 01.09.09. The first correct entry drawn from all the correct entries received by the closing date will win a Facom® DF.20-100 Brake & Clutch Bleeder System. The winner will be notified in writing within fourteen days of the draw. The prize is not transferable. The prize will be delivered by your local IFA Member within 28 days of the draw. No cash alternative will be offered. Entries will only be accepted on the original entry form published in Smart Parts. Only one entry per person. Photocopied entries will not be accepted. Only legible entries with all questions answered correctly, showing a name, the name of the garage you work at and its address, and the name of your local IFA member will be entered into the draw. Proof of posting is not proof of delivery. No correspondence can be entered into. Entries should be posted to Smart Parts Competition, c/o Unbounded, PO Box 1041, Leamington Spa, CV32 5TQ. By entering the competition you agree to participate in publicity should you win. The correct answers and winner's name will be published in SMART PARTS November/December 2009 issue. The promoter of the competition is the IFA, 9 Church Street, St Austell, Cornwall, PL25 4AT. The competition is not open to employees or their families or any agents of the IFA or their families or associates.

SMART PARTS Issue 17 Competition July/August 2009

Fill in the answers, complete your details then post this form to IFA Smart Parts Competition, c/o Unbounded, PO Box 1041, Leamington Spa, CV32 5TQ, to arrive no later than 31.08.09

1.
2.
3.

Name:

Garage Name:

Garage Address:

Which IFA Member supplies your garage?

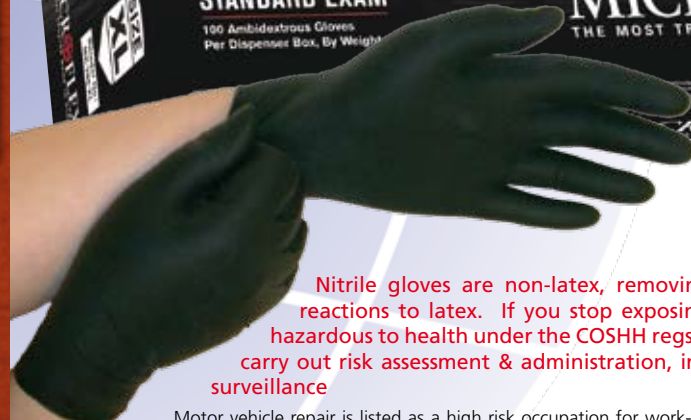
Branch

MidKnight Black Nitrile Gloves

The main reasons these are the No.1 selling gloves in the US Automotive Aftermarket:

- 20% Thinner at the fingertips for excellent grip and tactile responsiveness
- 34% Stronger than other Nitrile gloves - they don't tear like the others!

available NOW from your local IFA Member

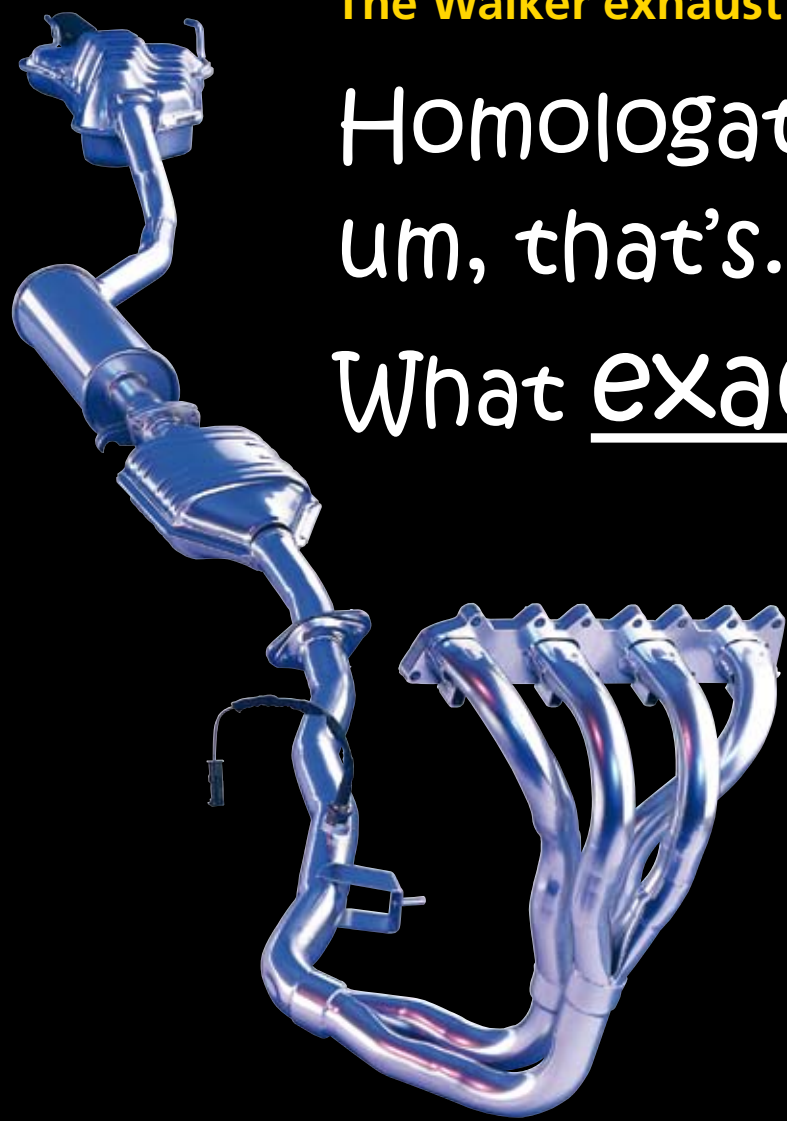


Nitrile gloves are non-latex, removing the risk to staff of reactions to latex. If you stop exposing staff to a substance hazardous to health under the COSHH regs, you no longer have to carry out risk assessment & administration, including annual health surveillance

Motor vehicle repair is listed as a high risk occupation for work-related skin problems by the Health & Safety Executive (HSE). Gloves are a solution that lessen this risk. The HSE states "Choose non-latex gloves unless there are no alternatives that give the protection needed".

MidKnight Gloves as seen on top TV programmes:





The Walker exhaust range is homologated to relevant European standards

Homologation. Ah, yes, well, that's..., um, that's..., give me a moment...

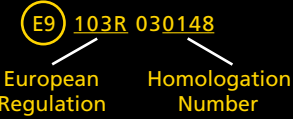
What exaCtly is it again?

Homologation means that an aftermarket part must be equivalent to the original equipment part on a vehicle - it should perform and fit the same as the part being replaced

Homologation tests are necessary and mandatory for all silencers and catalytic converters and must be passed if they are to get their homologation code and certificate:

- static noise test
- dynamic noise test
- back pressure test
- adaptability test
- precious metals content (only for catalytic converters)

A sample of an E-mark:



Standard across Europe the tests are carried out by each country's government's DTI representatives

Individual parts that pass the tests are issued with a certificate and a reference number that is included in the 'E' marking on each unit

**The 'E' mark is your sign of a tested quality part, manufactured to the highest standard
E-marking should always be stamped on the part and be visible when fitted**

For our latest up to date catalogue visit us online at www.taec.nl/walker



Call us with your homologation questions!
Walker Exhausts **Technical Hotline**
Any questions or feedback, call us on
0800 666 763

Receiver Dryer Replacement

The Issue

The receiver-dryer must be changed every time the A/C circuit is opened to the air (part replacement, crash, etc) or when it is clogged (shown by a temperature difference between inlet and outlet). It must also be changed systematically every 3 years.

The Approach

The receiver dryer is the last part to be fitted on the A/C loop. Always use an OE quality part. Check it has tight obturators on inlet and outlet. It must be clean and unblocked.

As soon as the receiver-dryer has been mounted, vacuum pump the loop with a service station to evacuate all humidity. This operation usually lasts at least 20 minutes (simple maintenance) but can take up to an hour (after a crash repair).

The receiver dryer is usually placed on the high pressure line between the condenser and the expansion valve. With recent technologies, it can be integrated into the condenser (see diagram).

Other Technologies:

Cartridge-dryer: Contains dehydrant product and filters and can be changed quickly. Remember to recover the refrigerant before opening the caps and perform a vacuum pump immediately after closing. Examples of model with the cartridge dryer: Alfa Romeo 147, Fiat Stilo, Ford Galaxy 04/00>, Lancia Ypsilon, Opel Astra G 01/02>, Opel Zafira 01/02>, Seat Ibiza 01>, Skoda Fabia, VW Sharan (04/00>, Polo 11/01>.

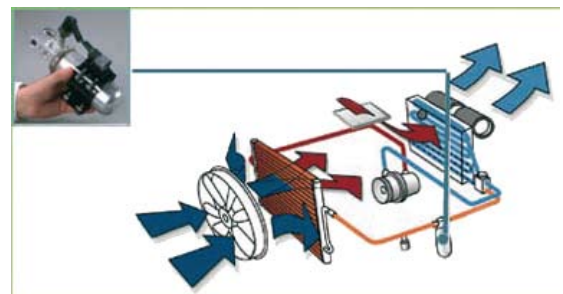
Integrated receiver-dryer: Contains dehydrant product and filters and can be changed separately but sometimes is linked to the condenser. Examples of model with the integrated receiver dryer: VW Golf 5, Peugeot 307.

For more information, see Technical Parts on page 17.

Valeo Technical Services Bulletin No: AC No 3/08



Receiver dryer



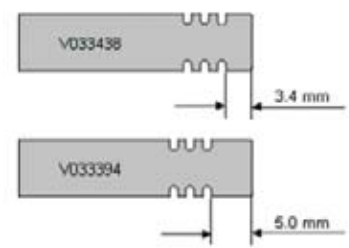
Location of receiver dryer in A/C system

Different Valve Stem Retainer on All Exhaust Valves for VAG/Seat/Skoda 1.8L 20v & 2.8L 30v Engines (TB 0705)

The Issue

Before fitting the valves of a range of applications for the above marques' engines, it is crucial that the dimension of the retainer being removed is measured as there is an option of two different measurements.

For engine code location and the full list of applications go to www.bgautomotive.co.uk, select catalogue, technical bulletins and click on the TB 0705 bulletin.



Incorrect Brake Shoe Fitting

The Issue

A customer took a '72 VW Beetle into a Ferodo Brake Specialist. New brake shoes had been fitted all round at a garage he had selected because they offered the cheapest quote.

A new master cylinder had been fitted not that long before, and the brakes had been properly adjusted after the new shoes were fitted.

The system had been bled, but at least four pumps of the brake pedal were needed to get any resistance from it at all.

The Solution

Once on the ramp the problem became clear. A simple mistake had been made when fitting the new shoes. Instead of attaching the top brake shoe return spring to the leading shoe (the forward facing shoe with the snail adjuster) it had been attached to the trailing shoe (without the snail adjuster).

The result was that the wheel cylinder piston for the trailing shoe was fully retracted into the cylinder every time the pedal was released. As the mistake had been repeated on all four wheels, it needed several pumps of the pedal before the shoes came out of the cylinder far enough to touch the brake drums.

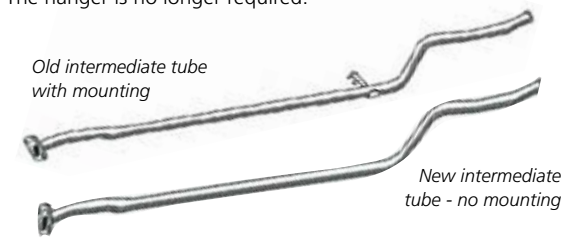
The mistake takes little time to rectify, simply attach the return spring to the correct shoe on each wheel and the brakes are back to normal.



Intermediate Tube Mounting Hanger on Citroën Saxo & Peugeot 106

The Issue

All Citroën Saxo and Peugeot 106, 1.1i (HFX) and 1.4i (KFW) will not be equipped with the mounting hanger on the intermediate tube (see diagrams below) in accordance with the OE aftermarket PSA note of information number 001058. The hanger is no longer required.



To be sure of what is inside,
**TAKE A LOOK
 OUTSIDE
 THE
 BOX**



For the best overall package of **Quality, Range, Service** and **Value** - choose 'OE Matching Quality'

Brake, Clutch and ancillary cables from **FIRST LINE**



TECHNICAL HOTLINE 01869 329709 • FREE ONLINE CATALOGUE www.firstline.co.uk

Control Cables

OE QUALITY

BUY CHEAP = BUY TWICE!

Buy cheap = buy twice!

Fitting substandard products / low cost aftermarket parts can prove to be nothing but a false economy.

After all, no workshop wants to waste costly downtime searching for fitting accessories or having to revisit a brake job for an unhappy customer.

Fit and forget.

By fitting Ferodo Premier you are fitting O.E. performance. With this comes a quality assurance that means you can simply 'fit and forget'. The result is safe, consistent braking with long life and low noise, good fade resistance and consistent stopping distances.

Extended life means value for money.

In terms of durability, performance and wear Premier pads can deliver up to 60% greater service life when compared to well-known 'Aftermarket' brands.

PREMIER

The ultimate OE quality by Ferodo.

Demanding road.
 No room for mistakes.
 No room for compromise.



SERVICE LIFE TEST *



* Figures obtained from MTK Wear Circuit tests made on a FN3-57 caliper.

Fitting substandard products / low cost aftermarket parts can prove to be nothing but a false economy.



Alfa Romeo, Aston Martin, Audi, Bugatti, Bentley, Chrysler, Citroën, Dacia, Ferrari, Fiat, Ford, GM, Honda, Hyundai, Isuzu, Iveco, Jaguar, Lamborghini, Lancia, Landrover, LDV, Maserati, Mazda, Maybach, Mercedes-Benz, Mini, Mitsubishi, Nissan, Opel/Vauxhall, Peugeot, Porsche, Renault, Saab, Seat, Skoda, Smart, Suzuki, Toyota, Volkswagen, Volvo.

FEDERAL MOGUL www.ferodo.co.uk

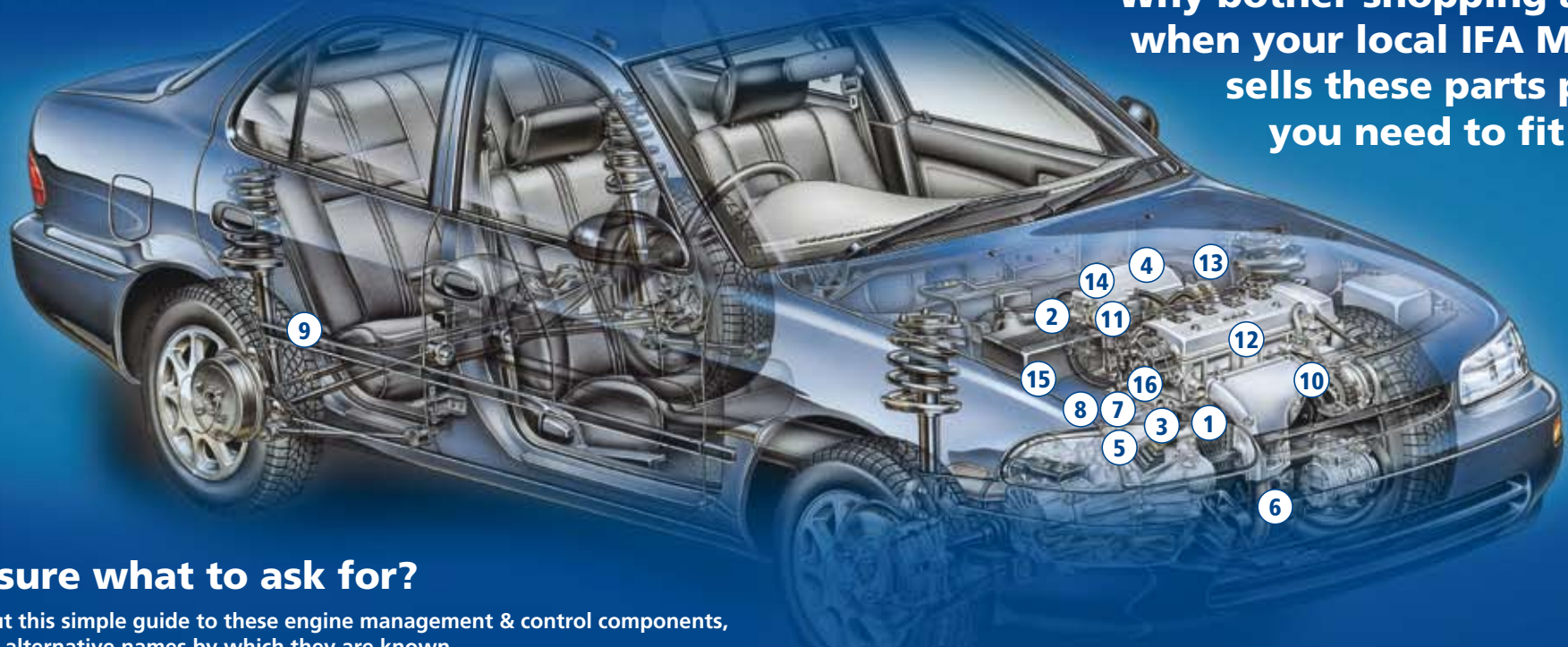
FERODO®
 THE FIRST NAME IN BRAKES

Brake Pads

OE QUALITY

Engine Management & Control Components

Why bother shopping around when your local IFA Member sells these parts plus all you need to fit them?



Not sure what to ask for?

Check out this simple guide to these engine management & control components, showing alternative names by which they are known

Your local IFA Member supplies these quality parts, any equipment required for diagnosis and system reset, & any specialist tools for the job

Simply call your local IFA Member for more information

Compiled with the kind help of Intermotor/Standard Motor Products
Car illustration is © Standard Motor Products & used with their kind permission. All rights reserved.

1. Temperature Sensor (Coolant & Air)

Function: Measures coolant & air temperature by sending a variable voltage, relative to temperature, to the ECU

Causes of Failure: Corrosion damage. Resistor failure.

Symptoms: Incorrect signal to ECU, poor running/starting, incorrect mixture

Alternative names:

- Air Charge Temperature Sensor (ACT)
- Air Temp Sensor or Inlet Air Temp Sensor
- Manifold Air Temp Sensor (MAT)
- Ambient Air Temp Sensor
- Coolant Temp Sensor (CTS)
- Engine Coolant Temp Sensor



2. MAP Sensor

Function: Measures inlet manifold vacuum & gives load signal to ECU

Causes of Failure: Internal damage to the diaphragm & circuitry caused by petrol vapour.

Symptoms: Incorrect mixture, poor running, difficult starting

Alternative names:

- Manifold Absolute Pressure Sensor
- Load Sensor
- BARO Sensor
- Vacuum Sensor
- Pressure Sensor



3. Engine Position Sensor

Function: Measures engine speed & crankshaft position.

Causes of Failure: Impact or external damage; Corrosion damage

Symptoms: Loss of / weak signal to ECU causing failure to start or poor running

Alternative names:

- Crankshaft Position Sensor
- Camshaft Position Sensor
- Phase Sensor
- Engine Speed Sensor
- RPM Sensor



4. Throttle Position Sensor

Function: Measures throttle angle & rate of throttle opening, to provide the ECU with a load signal

Causes of Failure: Water ingress; Damage to resistor track

Symptoms: Poor driveability, idle problems

Alternative names:

- Throttle Potentiometer
- TPS
- Idle Switch
- Throttle Switch
- Potentiometer



All the right parts from your local IFA Member

5. Air Flow Meter

Function: Measures load by metering volume of air flowing into engine

Causes of Failure: Sticking sensor flap; Worn resistor track; Base plate air leak

Symptoms: Incorrect mixture signal to ECU, poor running, difficult starting



Alternative names:
Air Flow Meter (AFM)
Vane Air Flow Sensor

6. Oxygen (Lambda) Sensor

Function: Measures oxygen content in exhaust gases. Provides voltage signal to ECU so that mixture adjustments can be made

Causes of Failure: Age; Heater failure; Impact damage; Fouled sensor (anti freeze, lead, soot)

Symptoms: Incorrect mixture control (MOT failure), poor driveability

Alternative names:

HEGO or EGO Sensor
Lean Burn Sensor
Linear Air Flow Sensor (digital operation)
Nernst Cell Sensor (digital operation)
Post Cat Oxygen/Lambda Sensor
Planar Sensor
Titania (5v) or Zirconia (1v) Oxygen Sensor



7. Air Mass Meter

Function: Uses a hot film platinum sensor to measure mass of air entering intake so ECU can determine engine load

Causes of Failure: Contamination by dirt and moisture of sensing element

Symptoms: Poor driveability & throttle response, increased fuel consumption, fluctuating idle

Alternative names:

Mass Airflow Sensor
Air Mass Meter
Mass Air Flow Sensor (MAFS)
Hot Wire Air Flow Sensor
Hot Wire Sensor



8. ECU

Function: Receives information from sensors, which is processed to provide appropriate control signals to injectors & other actuators such as the coil

Causes of Failure: Too numerous to list



Alternative names:
Engine Control Unit
Engine Management Unit

9. Fuel Pump

Function: Fitted together with a non return valve into the fuel supply system to provide fuel under pressure to the injector

Causes of Failure: General wear. Damage caused by contaminated fuel.

Symptoms: Low fuel pressure, low fuel delivery, poor running due to fuel starvation



Alternative name:
Electric Fuel Pump

10. EGR Valve & Sensor

Function: Recirculates small amount of engine's exhaust gases back into combustion chamber. Further reduces NOX emissions by cooling the combustion process

Causes of Failure: Sticking open due to carbon build up. Sticking shut due to diaphragm failure.

Symptoms: Sticking open: Difficulty starting, loss of power, high fuel consumption.
Sticking shut: Pinking (high combustion chamber temperature)

Alternative name:

Exhaust Gas Recirculation device



11. Ignition Coil

Function: Transforms battery voltage to 10,000 volts plus to produce a spark at the plugs

Causes of Failure: Vibration or heat damage causing internal failure; Crack around chimneys causing arcing & tracking to earth.

Symptoms: Misfire or non start

Alternative names:

Multi Outlet Coil
Coil on Plug
Pencil Coil
Mushroom Coil
Rail Coil



12. Fuel Injector

Function: Accurately sprays fuel into engine inlet port

Causes of Failure: Pintle or disc damage. Broken spring.

Symptoms - High or low fuel delivery, poor spray pattern

Alternative names:

Electronic Fuel Injector
Mechanical Fuel Injector



13. Pressure Regulator

Function: This ensures that fuel is supplied to the injectors at a constant pressure.

Causes of Failure: Diaphragm failure

Symptoms: Non start, fuel starvation, excess fuel delivery



Alternative name:
Fuel Pressure Regulator

14. Idle Speed Control Valve

Function: Controls idle speed by allowing air to by-pass throttle plate when throttle closed

Causes of Failure: Damage to electrical components & sticking internal parts

Symptoms: Incorrect idle speed or cutting out at idle

Alternative names:

Stepper Motor
Idle Air Control Valve
Idle Speed Control Motor
Idle Speed Control Valve



15. Fuel Pump Relay

Function: Activated by ECU or ignition switch allowing current to pass to fuel pump

Causes of Failure: Failure of internal electrical components

Symptoms: Non start, Fuel starvation

Alternative names:

(none)



16. Knock Sensor

Function: Located on engine block, detects engine detonation (pinking). ECU responds to signals from knock sensor by retarding ignition timing

Causes of Failure: Internal damage to electrical components

Symptoms: 'Pinking' not reduced under load

Alternative names:

(none)





The No.1 choice

From the world leaders in spark plug technology.

NGK Spark Plugs

As the world's No.1 OE supplier of spark plugs and originators of copper core technology, you can be confident of finding the right plug for your engine with a range that includes Iridium, Platinum and multi-ground electrode types.

NGK Diesel Glow Plugs

The No.1 brand in the UK, our extensive range covers virtually all aftermarket requirements including ceramic types. Plus the latest dual coil technology and top quality materials ensure optimum performance, high reliability and long life.

NTK Lambda Sensors

NTK are the world's largest manufacturer of Lambda Sensors and offer a full all-makes aftermarket range of ready to fit sensors, all of which have factory fitted OE specification connectors for fast, reliable fitment.



Never settle for second best, insist on NGK

F I T T E D A S O R I G I N A L E Q U I P M E N T A R O U N D T H E W O R L D

Alfa Romeo	Chevrolet	Fiat	Jaguar	Lotus	Nissan	Saab	Toyota
Aston Martin	Citroën	Ford	Jeep	Maserati	Perodua	Seat	Vauxhall
Audi	Daewoo	General Motors	Kia	Mazda	Peugeot	Skoda	Volvo
Bentley	Daihatsu	Honda	Lancia	Mercedes-Benz	Proton	Smart	VW
BMW	DaimlerChrysler	Hyundai	Land Rover	MINI	Renault	Suzuki	
Caterham Cars	Ferrari	Isuzu	Lexus	Mitsubishi	Rolls-Royce	Subaru	



NGK NTK
SPARK PLUGS TECHNICAL CERAMICS

Engine Management: More systems, more complex, more difficult to ignore

The sheer number of vehicles on Europe's roads focuses increasing attention on the pollution caused, as issues such as environmental pollution are ever more centre stage, thanks to concerns over global warming.

Pollution-free solutions are attractive but currently cost prohibitive. Petrol or diesel fuelled, combustion engines are currently the most cost effective solution to propel a vehicle.

Legislative and environmental pressures lead VMs to develop ever more fuel efficient, less polluting vehicles. Engine management system complexity increases with these developments.

Put simply, an engine is controlled by an ECU (electronic control unit) which takes information from sensors located on or around the engine. Sensors include air temperature, air mass, coolant temperature, lambda, cam/crank position and knock [see Technical Parts on pages 12 & 13 of this issue of **SMART PARTS**]. The ECU then determines the quantity of fuel and ignition timing required for optimum performance/economy for the current load on the engine and delivers this via control components such as ignition coil(s), fuel injector(s) and the idle control valve.

Some of these sensors (e.g. air mass meter, lambda sensor) have a service life and their manufacturers recommend change after a specific mileage. The sensor may still function, but its accuracy will have deteriorated due to contamination by dirt particles and, unchanged, may adversely affect the vehicle's performance and fuel consumption.

Many VMs now use direct ignition systems in which there is an individual coil for each cylinder, directly mounted on the spark plug. This ensures a rapid current rise in the primary winding of the coil, giving a higher energy spark, better cold starting and operation with lean mixtures. The ECU can control the ignition timing individually to each cylinder. Electronic ignition system control also allows it to be linked to control of all engine and vehicle functions, e.g. ignition timing increasingly provides traction control and 'softer' gear changes for auto transmission.

Precise control of the engine's ancillary functions allows additional features to be added, e.g. 'resting' half the cylinders to improve fuel economy, including safety logic to shut down a fuel system in an accident or if there is a lack of engine oil pressure.

Electronic control is growing at an exponential rate, not only on the engine but other vehicle functions such as braking, steering, suspension, electronic stability control and other driver assistance systems. Driver expectations and market forces are as responsible for these developments as tightening emissions legislation and safety regulations. Individual systems networked to the engine management ECU provide an integrated electronics system. Engine efficiency, driver/passenger safety and driver experience are all improved.

Major automotive mechanical component failure is less common today but electronic component failure, diagnosis and repair is increasing. The last five years has seen a huge rise in the demand for ignition coils, air mass meters and cam/crank sensors

Today's vehicles are complex and a problem in the engine could be caused by a fault in a wheel speed sensor or any of the other sensors with which the engine ECU is networked.

There is nothing to fear and much to gain from a clear understanding of modern vehicle electronics.

Part of the Standard Motor Products group, a major Engine Management component manufacturer, Intermotor is the UK's leading supplier of quality engine management components, available through your local IFA Member

Already market leaders in established markets the group is committed to becoming Europe's number one aftermarket supplier of engine management products.



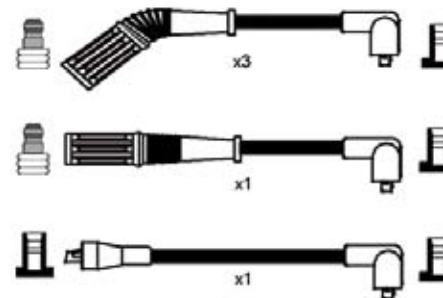
tech talk

OE QUALITY



Original Equipment Fit

The ElectroSpark range of Original Equipment Fit ignition lead sets contains over 800 references, making it the most comprehensive range of OE fit sets available. Designed to meet or exceed OE performance standards, the leads are manufactured using 7mm or 8mm full silicone and copper core cable. In addition the range also includes 5mm cable O.E sets to cover the Japanese and Korean vehicle parc.



OE Quality... for reliability and fit

ElectroSpark ignition leads are manufactured using the latest computer aided design methods. All materials and processes conform to international specifications ISO 3808/1, ISO 3808/2, ISO 6856 and European Legislation CEE/72-245.

Double silicone cable is used for maximum radio suppression, resistance to temperature, water and oil degradation and chemical attack. All terminals are machine crimped to ensure strong and reliable connections. All spark plug boots and terminal covers are moulded from silicone for a water tight seal.

The product is extensively tested. These tests include "pull off" tests, both hot and cold, to check that all terminals and connections are satisfactory and a hi-voltage saline solution immersion test to check for current seepage.

...fit them and forget them



The First Choice for Quality & Performance

Standard Motor Products Europe Ltd

Ignition Lead Sets

OE QUALITY



The Answer For Engine Management Components

- 35,000 Applications
- 3000 References
- Genuine OE Sensors Available
- Technical Helpline
- Live Online Technical Support



Engine Management -
The way forward is Fuel Parts,
Call your local IFA Member to find out more.

www.fpuk.co.uk

Banner THE POWER COMPANY



2009 Radical Makeover for
12 Best-Selling Starting Bull
& Power Bull Batteries

**NEW Power Bull
- Improved all around!**

- All European types now with patented Double Top Technology (superb leak protection & operating safety)
- Highest quality premium starter battery
- Range from 40-100Ah
- Robust cyclic behaviour for modern vehicles
- Zero maintenance, extra calcium power for flying start performance
- OEM quality in line with BMW & VW standards

NEW Starting Bull

- Optimum price performance ratio
- Great value, robust, proven & fully optimised
- Zero maintenance calcium technology
- Four chamber leak protection as standard on 12 best-selling Starting Bull batteries (ranging from 40 – 100Ah)
- Central degassing & improved integrated back fire protection
- Top class design, new terminal covers
- Labels state type, DIN & UK classifications



Air Con Systems

Available from your local IFA Member - just give us a call

Vehicle Air Conditioning Systems

Air conditioning servicing is a lucrative opportunity for independent garages. It is estimated that each year vehicles lose 10-15% of the refrigerant charge from their A/C system and a re-charge is required every two years. Up to 80% of the vehicles that come through an independent garage have A/C fitted.

Estimates suggest 80% of A/C work is a straight-forward re-charge, requiring materials costing up to only £10 to £15, while £75 to £85 can be charged. Necessary additional repair or replacement work may be discovered. A/C servicing and repair is not an area to ignore.

The A/C system is a simple loop (see the illustration), containing the refrigerant, R134a (a fluorinated hydrocarbon) and PAG oil (polyalkylene glycol).

Cabin heat is absorbed by the **evaporator**. The refrigerant changes state from a cool, low pressure liquid to a low pressure hot vapour.

The **receiver dryer** is a liquid refrigerant reservoir that captures the refrigerant and absorbs moisture in the refrigerant vapour. This is vital to prevent system damage which is explored later. It filters the refrigerant flow to block impurities (which might block the expansion valve) and acts as a damper for flow variations. It also prevents gas bubbles getting into the expansion valve.

Heat from the refrigerant is extracted in the **condenser** producing a low pressure cool liquid which is pressurised in the **compressor**, which also moves the refrigerant around the system.

The **thermostatic expansion valve** (TXV) is an orifice that lowers refrigerant pressure to about 3 bars before entering the evaporator, giving an evaporation temperature of 0°C, the most efficient for refrigeration. The thermostatic head reacts to refrigerant pressure/temperature at the evaporator outlet, enabling the A/C to produce cold air continuously in any condition.

A/C System Damage by Humidity

The main role of the receiver dryer is to trap any humidity circulating in the A/C loop which results from manufacturing defects (defective o-rings, components opened to air, etc), bad maintenance (no vacuum pumping, poor repairs) or use of an oil saturated with humidity.

Free humidity in the circuit harms the A/C loop components. The expansion valve can be obstructed by ice, reducing its efficiency and damaging the valve. The evaporator heat exchange surface is reduced by ice, again reducing A/C efficiency.

Saturation of the dehydrant product by humidity causes disintegration that may block the internal filter in the receiver dryer. Again A/C efficiency falls and oil is retained in the receiver-dryer. Most seriously the compressor is inadequately lubricated, leading to its breakdown.

Acid is likely to form between humidity and refrigerant giving a risk of internal corrosion of the A/C system components.

PAG Oil strongly absorbs humidity so it must be kept out of contact with the air. Oil exposed to air (and recovered oil from vehicles) must not be used to fill A/C systems.

Reasons for A/C Compressor Replacement

Almost all compressor failures occur due to lack of lubrication. Seizures cause 60% of compressor failures followed by clutch failures

(20%) and noise (10%). Faulty internal valves and damaged piston rings account for 5% each.

Oil is the lifeblood of the A/C system, distributed by the refrigerant. All components suffer sporadic lubrication if insufficient oil is used in a poor service. Lack of oil leads to refrigerant loss exacerbating loss of lubrication.

Compressor manufacturers recommend a specific grade of oil for their products. None approve use of universal oil and any warranty claim for any part of the A/C system could be invalidated if the system is contaminated with it.

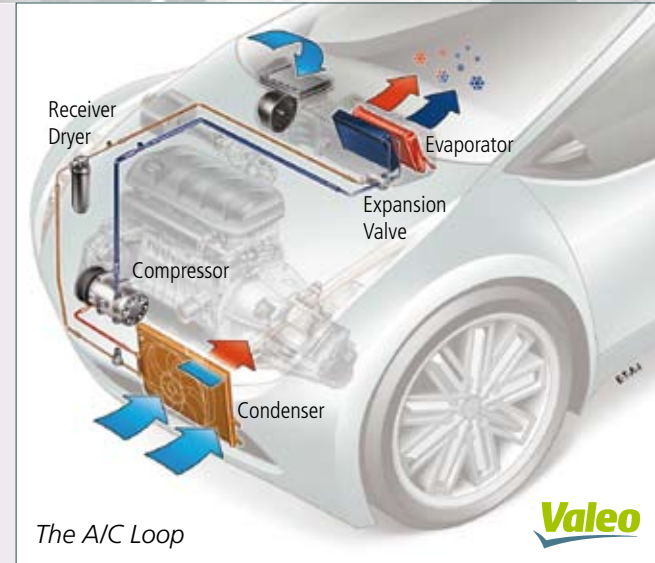
Thermostatic Valve Fitting

The thermostatic valve head must never be handled. It is fragile and sized for a specific application. Damaging it leads to A/C operating problems, either lack of cold air or high pressure increase. Similarly the right reference for the vehicle application must always be used, even if it looks the same. Do not use adaptable products and choose OE quality to maintain system integrity.

Particles over 50 microns of size can block the thermostatic valve so it must be kept clean before fitting. To protect it block the hose ends when fitting or removing a component.

Handling A/C Refrigerant

Since July 2008 technicians must have completed 'F'-Gas compliant training to be able to carry out air conditioning work on a vehicle. From 4th July 2009 for a garage even to be able to buy R134a will require that at least one technician there has an 'F'-Gas compliant certificate.



The A/C Loop



The aim of the EU 'F' Gas Regulations, is "to contain, prevent and thereby reduce emissions of the fluorinated greenhouse gases (F-gases) covered by the Kyoto Protocol. Leak detection is an important part of this regulation." Records of refrigerants and A/C servicing must be kept.

The IFA sell all the machines, parts and consumables required for Air Conditioning servicing & repairs. Contact your local IFA Member for more information.

Our thanks to Valeo & Delphi for their kind help in writing this article. The illustration is © Valeo & is used with their kind permission. All rights reserved.

The IFA: Your local expert technical parts supplier

Technical Parts

Essential Consumables

Contact your local IFA Member for more details



59099 A/C Gas 13.6kg Returnable / Refillable

Larger 13.6kg bottle

Refrigerant



590171 Retro Pro Kit

Retro Kit



59085 Flushing Fluid (4L)

Flushing Fluid



59024 Flushing Tool Kit

Flushing Tools



69081 PAG Oil Injector (240ml)
Available in 46, 100 & 150 viscosity

Oil



59882 Oil Canister (236ml) PAG 100



59883 Oil Canister (236ml) PAG 150



59888 Oil Canister (236ml) PAG 46



59023 Clean Air (2.5oz)
Treats one vehicle

Clean Air



5900102 UV Dye (250ml)

Leak Dye/Tools



5900173 Dye Stick Twister (25 shots)



5900175 Twister Hose



5900104 UV Dye Cartridge (4oz)

Vehicle Air Conditioning Components

Contact your local IFA Member for more details



Condensers



Compressors

Four Seasons Compressors

- New & remanufactured compressors FROM STOCK
- We can remanufacture ANY COMPRESSOR - TRY US!

Four Seasons A/C Machine Packages
ask your local IFA Member for details



Receiver Driers

Whatever your Air Conditioning needs, Four Seasons has it all...

MAKING THE WORLD A COOLER PLACE



SUPPLIED BY FOUR SEASONS (UK) LIMITED

A/C Compressor Replacement: A Complex Service So Do It Right First Time!

The most common component to fail in an air conditioning system is the compressor and clutch assembly. If system failure occurs, the service process must be performed properly - no shortcuts, all necessary components replaced. Improper servicing leads to poor cooling, reduced service life and invalidated component warranties.

The compressor circulates oil as well as refrigerant throughout the entire A/C system, so when it fails, additional components are affected. Following the manufacturers' guidelines ensures the replacement compressor functions at the same level as when new, maintaining the warranty.

Replacing a compressor is an involved service:

1. Identify system refrigerant. OEM & spares companies insist on the use of R134a
2. Reclaim R134a without venting to the air using certified recycling & recovery machine but do not use it if refrigerant is not R134a
3. Remove failed compressor & any fixings, check/replace switches as necessary
4. Clean A/C system using approved flush only. Do not flush sub-cooling condensers or hose assemblies with mufflers or in-line filters (replace). Do not flush compressor or filter dryer assembly
5. Drain the oil from the failed compressor into a measuring jug & top up if necessary using PAG oil
6. Inspect the thermostatic expansion valve inlet for debris & replace if required. Vehicles equipped with fixed orifice tube must have it replaced
7. Check condenser & radiator for debris. Look for missing air dams. Pressure test system for leaks
8. Check electric fans operation including current draw, loose/cracked fan blades, general condition
9. Replace filter dryer assembly. It contains a filter screen as well as desiccant to keep

the A/C system free of moisture. It MUST be replaced.

10. Add required type & amount of PAG or POE oil to system. Refer to workshop manual for vehicle being repaired

11. Tighten all mounting bolts & brackets evenly, using values in workshop manual. Use new O-rings & gaskets

12. Evacuate A/C system to remove air & moisture for minimum 30 minutes prior to adding refrigerant

13. Recharge the system with R134a to vehicle manufacturer's recommended weight

14. Burnish compressor clutch. Operate engine at 1500rpm & turn A/C on & off 15 times using the button on the control panel

15. Check compressor clutch for voltage drop at clutch connectors, with engine running at normal operating temperature. Voltage should be within 2 volts of charging system voltage present at battery

16. Conduct system performance test following workshop manual procedure

17. With service equipment removed spray service fitting with compressed air & perform final leak check on service fittings which account for 15% of 'phantom leaks'. Replace service fitting caps. The job is done!

Changing a compressor is an involved service when done right and there are no short cuts, but the pay-off for your customer is the satisfaction of years of trouble-free cooling

Four Seasons UK Ltd is a major player in UK automotive air conditioning. They supply new and remanufactured compressors from stock and can remanufacture any compressor. Four Seasons offer the complete air conditioning package, from servicing machines and parts to consumables.

Their A/C servicing packages include unsurpassed on-site commissioning and training and highly reliable customer support with outstanding technical back-up.



OE Flat Wiper Blades from an OE Manufacturer

Fit the wiper blades the car manufacturers fit!

**SILENCIO
X.TRM**

QUALITY, PRECISION, PERFORMANCE AND A CONTINUOUSLY UPDATED RANGE...

Valeo's Silencio X.TRM FlatBlades are made on the same production line as the OE, to OE standards. Each wiper blade is specific to its listed application so you always fit the correct wiper.

Offer your customers enhanced performance, increased longevity and, most importantly, safety.

Valeo's Silencio X.TRM range of FlatBlades comprises over 60 references and is continuously updated for new vehicle introductions (see inset).



Valeo

NEW LOOK PJ RANGE

The new look PJ range has 14 new part numbers including a range of aftermarket flatblades designed for upgrade from conventional blades.

The new 2009/2010 PJ catalogue will be out in July 2009.



NEW TO RANGE Silencio X.TRM Flat Blade Wipers:

- Land Rover Discovery 3 10/04>, Range Rover Sport 05/05>
- BMW 3 Series E92 Coupe 09/06>, E93 Cabriolet 01/07>, M3 E92 09/07>
- Ford Galaxy 05/06>, S-Max 05/06>, Peugeot 308 09/07>
- Fiat 500 01/08>
- Audi A5 06/07>12/07, VW Tiguan 11/07>

www.valeoservice.com/html/unitedkingdom/en

valeo added ■■■■■

OE QUALITY

Wiper Blades

NEW Universal Flat Wiper Blade Range

ask your local IFA Member for details



TRUPART



TRUPART ...our business is Service

Trupart's superb Wiper Blade programme has been extended with a range of innovative new 'Universal Flat Wiper Blades'.

A unique adaptor system allows only 14 new Flat Blade part numbers to satisfy the requirements of almost all the flat blade market. New vehicle applications include new Vauxhall Insignia 08> and Ford S-max 08>, among many others.

Two independent reviews in 'Auto Express' magazine compared the Trupart Blade with

some of the best known brands, hailing it as a winner for its unbeatable balance of quality and price. All the new Trupart Blades incorporate the 'award winning' Trupart rubber.

Find out more about Trupart's innovative new Wiper Blades by contacting your local IFA Member or logging on to their website www.trupart.co.uk

www.trupart.co.uk

OE QUALITY

Wiper Blades

Valeo: Europe's Number One in Starters and Alternators

Available now from your local IFA Member - call and ask for more details

StARS

Starter Alternator Reversible System

Available exclusively from Valeo, StARS enables vehicle manufacturers to reduce city driving fuel consumption by up to 15%, with no radical changes to engine architecture.

The system, first launched in 2003, combines Starter and Alternator functions into one unit. Valeo StARS cuts off the engine when the vehicle is stationary then instantly and silently restarts it when put in gear or the brake is released.

An Exciting New Opportunity for the Automotive Aftermarket!

Although small currently, this opportunity is growing due to:

- stop/start technology being offered on a wider number of cars
- regulations in environmental improvement
- end consumer decision making

Within three to four years Valeo predicts that Hybrids will be a significant market segment. This provides new high value opportunities for service and repair (both parts and labour), e.g. Valeo estimates that repairs to the electrics on a Hybrid will be three times the value of traditional rotating. Good reason for the trade to prepare for the introduction of StARS!

The 'Start-Stop' Alternator is being launched to the IAM in the Autumn and appears in Valeo's new June 2009 Starters and Alternators Catalogue.



StARS

Valeo

NEW TO RANGE StARS:

(Starter Alternator Reversible System, or Stop/Start)
Available from September 2009:

- Citroën C2, C3 1.4 16v
- SMART ForTwo MicroHybrid Drive (MHD)

NEW TO RANGE Starter Motors:

New Citroën C5	Peugeot 308 2.0HDI
Ford Fiesta 1.2, 1.4 16v 2008>	VW Golf VI 1.4TFSI
Ford Transit Connect 1.8 TDCi	VW Scirocco 2.0TFSI 2008>

NEW TO RANGE Alternators:

Audi A4 2.0 TDi 2007>	Mazda 2 1.4
Audi A5	Mercedes-Benz C Class 2007>
BMW 1 Series 116, 118, 120d	Renault Megane 3 2.0 1.5DCi
BMW 3 Series E90	Vauxhall Vectra 2005>
Ford Mondeo 1.6 VCT 16v 2007>	

Starters & Alternators

Standard Exchange

THE RANGE:

1,779 Part Numbers - 96% Coverage

1,111 Alternators
668 Starters

Regular release of New To Range products

OE EXPERTISE:

The OE manufacturers' preferred brand

No.1 in Europe - we utilise our advantage in the OE market to bring the very best products to the aftermarket

QUALITY:

Valeo remanufacture all Rotating Electrics technologies. Every unit gets a stringent **40 Point check** and is backed by a 24 Month Warranty*.

*Refer to the Valeo Service Offer for full details

Valeo Technologies are fitted on 57% of Peugeot, Citroën & Renault models

Valeo Products equip 41% of BMW, Mercedes-Benz & VAG as OE



The IFA and Valeo: A Partnership for Growth

For further information on Valeo products/services and to access Valeo's Technical Bulletins Library, please log on to www.valeoservice.com/html/unitedkingdom/en

valeo added