

AIR CONDITIONING WORKSHOP EQUIPMENT

2017/2018

- Close to 100 % discharge in four steps
- AirCon Service Centers for R 134a and R 1234yf



A/C service units, consumables and accessories for R 134a and R 1234yf



LOW EMISSION
FAST, ECONOMICAL, ECO-FRIENDLY



BEST BRAND IN AIRCON SERVICE

ASC SERVICE UNITS BY WAECO

The WAECO ASC series was awarded "Best Brand" in the category A/C service units by leading industry magazines twice in a row. This

success means a great deal to us, because it was voted for by the readers, and specialists who work with our products every day.





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Professional tips	FAQs

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LOW EMISSION – A TRULY COMPLETE DISCHARGE IN 4 STEPS

The LowEmission technology is the only way to get a truly complete discharge of the A/C system. 99.9 % of the refrigerant in the A/C circuit can be recovered.

Page 11



ORIGINAL IDEMITSU OILS – IN A HUMIDITY FREE STORAGE AND FEEDING SYSTEM

Thanks to the new strategic partnership between the original oil manufacturer Idemitsu and Dometic we can now supply the original oils also in a moisture-free container.

Pages 44 – 47



FOR BUSES AND RAIL VEHICLES

Now we are also offering a special WAECO Low Emission A/C service unit for high-volume A/C systems. After all, saving on refrigerant is especially profitable in these applications.

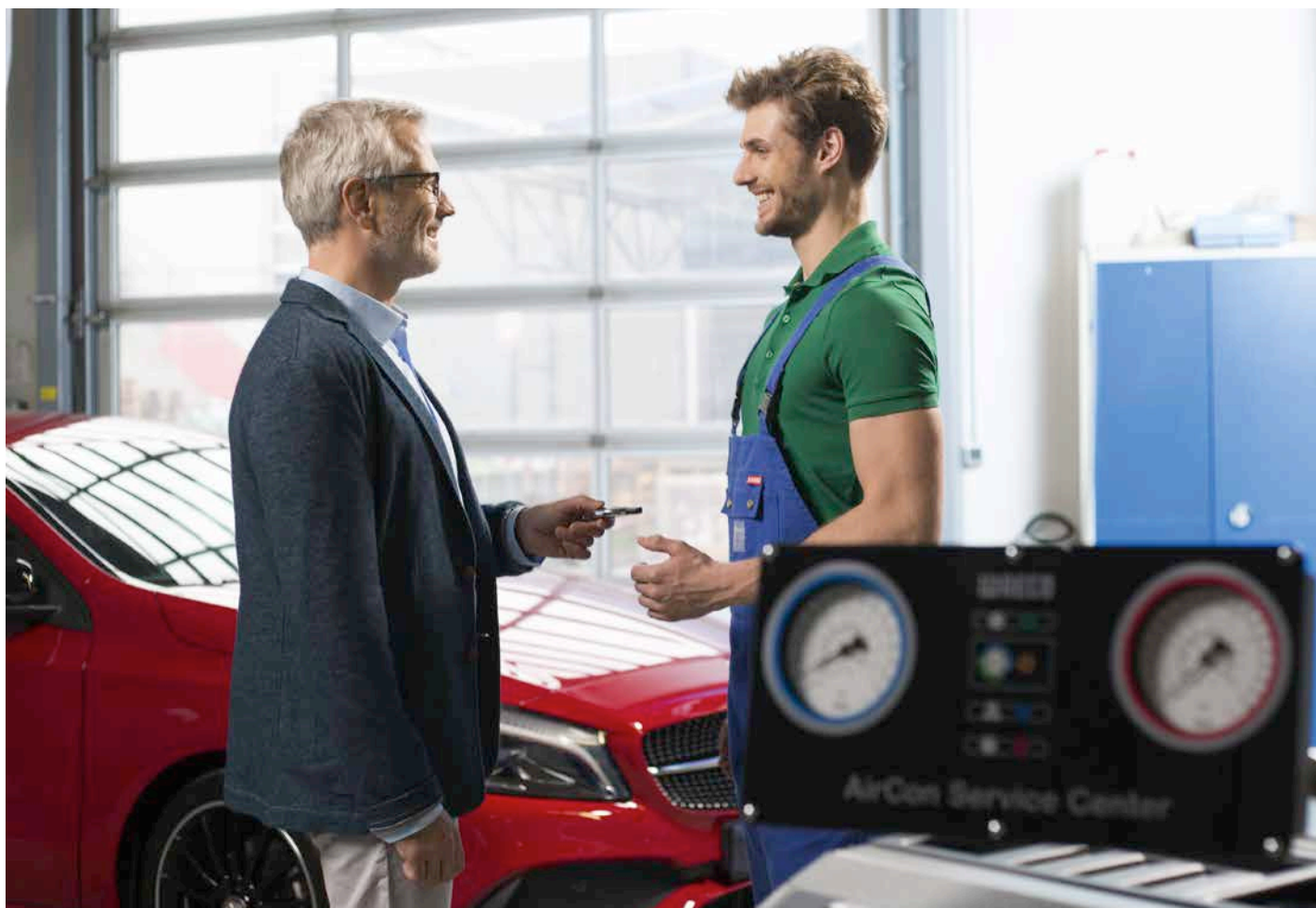
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AN EASY START WITH R 1234yf

For workshops wishing to start providing A/C service on R 1234yf air conditioners, we now offer a low-cost basic model – the new A/C service unit WAECO ASC 5100 G.

Pages 26 – 33





ASC A/C SERVICE UNITS

NOW EVEN MORE USER-FRIENDLY

ASC A/C service units have, over the years, gained a firm place in garages and air conditioning workshops. This is because they have the right quality and all it takes to make service work on automotive air conditioners a profitable and safe business.

With this philosophy in mind we have created the new G-series, which is even more user-friendly. All models in series come standard with a USB connection. That means that system software and databases can simply be updated with a USB stick and important service data can be retrieved.

CUSTOM MODELS – NO PROBLEM FOR EUROPE’S LEADING MANUFACTURER!

In addition to the standard models presented in this catalogue, we also create customised A/C service units – e.g. for the authorised workshops of leading automotive manufacturers like BMW and Volkswagen. The new VAS service unit generation, featuring an integrated flush container, is standard equipment for A/C service on Volkswagen, Audi and Porsche passenger cars and utility vehicles.





R 134a

ASC 2500 G Low Emission

Environment and efficiency

More details on pages 12 – 13



R 134a

ASC 1000 G

Universal entry-level model

More details on pages 14 – 15



R 134a

ASC 2000 G

Classic model for professionals

More details on pages 16 – 17



R 134a

ASC 2000RPADesigned for extra safety with additional gas analysis function
More details on pages 18 – 19

R 134a

NEW**ASC 3500 G Low Emission**Highly efficient Low Emission unit for large refrigerant amounts
More details on pages 20 – 21

R 134a

ASC 3000 GHigh-volume version for large refrigerant amounts
More details on pages 22 – 23

R 1234yf

ASC 5500RPA G Low EmissionDesigned for highest demands on safety and efficiency
More details on pages 28 – 29

R 1234yf

NEW**ASC 5100 G**Reliable basic unit for service on R 1234yf systems
More details on pages 30 – 31

R 1234yf

NEW**ASC 5300 G**Safe service on air conditioners with R 1234yf refrigerant
More details on pages 32 – 33**ASC G-SERIES WITH INTEGRATED USB INTERFACE**

All A/C service units of the ASC G-series are supplied with an integrated USB interface. This makes updates of databases and system software easier, and it also facilitates the documentation of important service data. For example, the amount of recovered or charged refrigerant can simply be exported to a USB stick and then further processed on a laptop or PC.

A/C SERVICE AT TOP LEVEL

ASC SERIES MEETS SAE J 2788, 2099 AND 2843

The standards developed by the Society of Automotive Engineers (SAE) are valid for the USA, while they can also be found in the factory specifications of several automotive manufacturers.

What are the most significant requirements and what do they mean for daily workshop operation?

Requirements for A/C service units:

- The unit must be able to recover **95 %** of the refrigerant contained in the automotive air conditioner within **30 minutes**, at ambient temperatures between 20 and 24 °C. In other words, no more than **5 %** of the refrigerant may be **left** in the air conditioner.
- Refrigerant **must** be charged with an accuracy of +/- 15 g after performing test.
- Refrigerant recovery **must** be made and displayed with an accuracy of +/- 30 g.

R 134a – APPROVED OR RECOMMENDED BY AUTOMOTIVE MANUFACTURERS

Automotive manufacturers	A/C service units	Leak detection equipment	Air conditioner cleaning	UV additives (e.g. for UV leak detection)
Mercedes-Benz	●	●	—	●
BMW Group	●	●	—	●
Nissan Germany	●	●	●	●
Renault Germany	●	●	●	●
Volkswagen Group	●	●		●
Fiat Germany	●	●	●	●
Ford Europe	●	●	●	●
Volvo Europe	●	●	●	●
Jaguar	●	●	●	●
Volvo	●	●	●	●
Aston Martin Europe	●	●	●	●
Mazda	●	●	●	—
Hyundai	●	—	—	●
Opel / GM Europe	●	●	—	—
MAN	●	●	—	●
DAF	●	●	—	●
SCANIA	●	●	●	●

In some cases only local approvals/recommendations

R 1234yf – A/C SERVICE UNIT APPROVALS/RECOMMENDATIONS FOR ASC 5500RPA FOR R 1234yf

BMW Group	Fisker*	Ford Europe*	Hyundai*	KIA*	Mazda*	Nissan*	Opel Group	Subaru*	Suzuki*	Toyota Motor Europe	Volkswagen Group	Volvo	Tesla
●	●	●	●	●	●	●	●	●	●	●	●	●	●

* in various countries

ASC BENEFITS AT A GLANCE

PROFITABLE, ECO-FRIENDLY, SAFE AND SECURE

TRULY AUTOMATIC UNITS – OFTEN COPIED, NEVER MATCHED!

Units with manual control valves involve the risk of erroneously charging the air conditioner from the low pressure side. Automatic units are safer, they have no manual control valves.

HUMIDITY FREE STORAGE AND FEEDING SYSTEM FOR FRESH OIL AND UV ADDITIVE

Fresh oil and UV additive are stored in aluminium laminated bags contained in protective metal cylinders. This keeps moisture out.

INTEGRATED CHARGING AMOUNT DATABASE

The database contains vehicle-specific data such as the oil type and the amount of oil and refrigerant. It provides the option to create a personalised charging amount database for up to 100 vehicles. Updates can be made via the USB interface available on nearly all models. Simply insert a USB stick, turn the unit on, and you're done!

INTEGRATED REFRIGERANT CHARGING / RECOVERY AMOUNT MANAGEMENT

The total amount of refrigerant charged or recovered per month can be displayed on the service unit or printed out with the thermal printer. Alternatively, it can be exported to a USB stick or laptop via the USB interface (ASC G-series).

ALSO SUITABLE FOR HYBRID VEHICLES (optional)

Thanks to the optional hybrid flushing kit the unit can be used for service work on hybrid vehicles of all brands / manufacturers. Dangerous oil cross contamination is impossible. The required software is already installed.



ECONOMICAL DIAGNOSIS TOOL

Low Emission ASC service units have a refrigerant recovery rate of about 99.8 %. This saves on expensive refrigerant, and it also helps detect leaks.

CUSTOMISED FLUSHING PROCESS AND FLUSH BOTTLE (optional)

The efficient and safe flushing process was developed in consultation with the automotive industry.

TÜV-APPROVED REFRIGERANT PURITY

TÜV Rheinland confirmed that the effectiveness of the refrigerant cleaning function of ASC units complies with SAE J 2099 / J 2210.

PROTECTED ACCESS WITH INDIVIDUAL USER CODES

Up to 10 user names can be programmed in combination with individual PIN codes.

OPERATIONAL SOFTWARE IN MORE THAN 20 LANGUAGES

de, en, fr, it, sr, hr, sl, tr, nl, da, no, sv, pt, gl, ca, es, eu, fi, et, cs, ro, pl, hu, ru, zh

DESIGNED FOR WORLDWIDE USE

The ASC range includes service units ready for connection to 230 V/50 Hz or 110 V/50/60 Hz. Models with country-specific mains plugs are also available.

USER-FRIENDLY DISPLAY UNITS

The swivel and tilt manometer unit is easy to read from every angle.

COMPETITIVE LIFECYCLE COSTS

The operational costs are significantly lower than with comparable units. Accurate, electronic control of consumable use. Service intervals and warranty periods are considerably longer (24 months).

- Maintenance-friendly vacuum pump
- High-capacity filter drier
- Valve block
- High-capacity, vibration cushioned weighing cell
- Heating belt
- Humidity free storage and feeding system

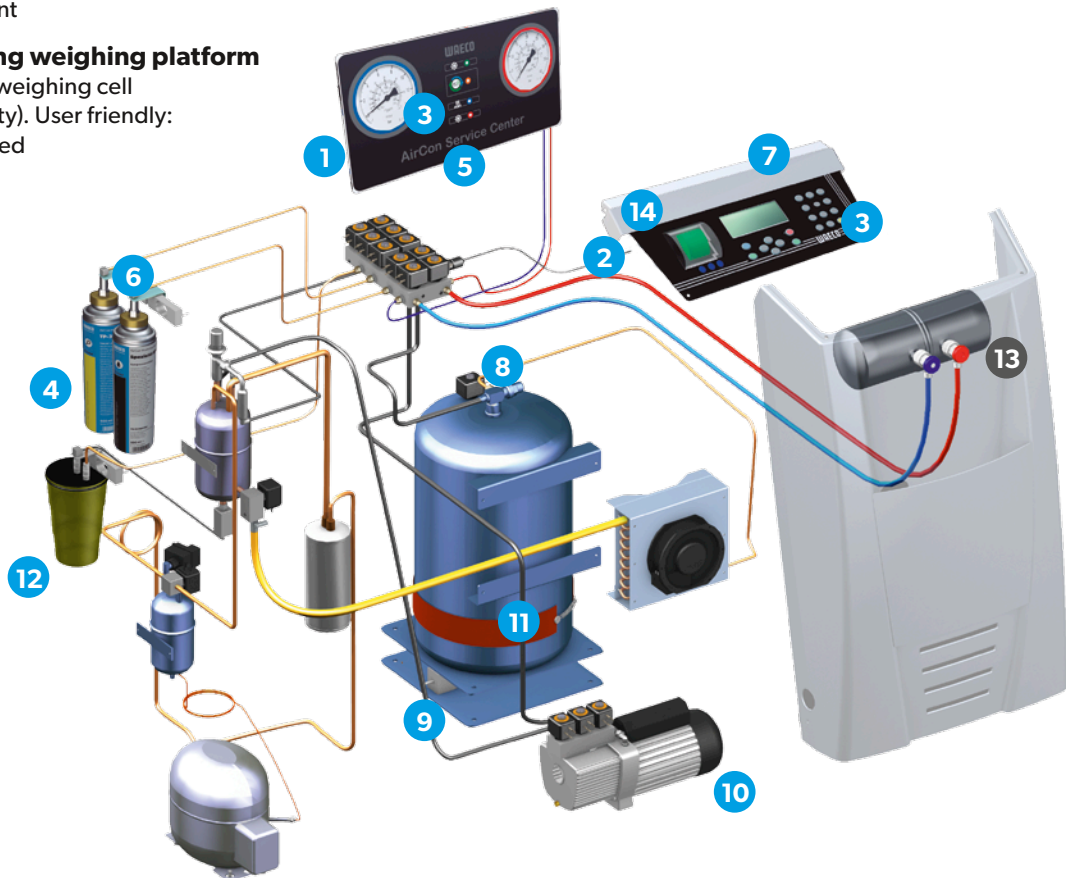
ASC 2500 G LOW EMISSION

ENVIRONMENTALLY SOUND AND PROFITABLE

Eco-friendly technology for use with R 134a: the ASC 2500 G Low Emission recovers almost 100 % of the refrigerant during A/C service. How does it manage to do so? Refrigerant loss mainly occurs in the phase when the refrigerator oil is forced out from the used oil container. The ASC 2500 G Low Emission uses a pressure-tight container. Moreover, the refrigerant escaping during

used oil discharging is collected in the used oil container, recovered and returned to the refrigerant tank. The result is a refrigerant loss rate of close to zero percent! The accurate identification of the amount of recovered refrigerant also allows conclusions to be drawn about the tightness of the air conditioner (diagnosis tool).

- 1 Swivel and tilt manometer panel –**
easy to read from every angle
- 2 Data printer to be activated as required,**
with multiple print-out and paper feed options
- 3 Large, high-quality keypad**
for reliable data entry
- 4 Patented, professional feeding system**
for fresh oil and UV additive
- 5 High-contrast LED display**
for process supervision from a long distance
- 6 3 separate weighing cells**
for oil management (used oil / fresh oil / UV additive) are a distinctive feature of the fully automatic unit
- 7 Large display**
for easy readability and reliable data entry
- 8 Refrigerant tank with preassembled condenser and fan**
for accurate indication of the recovered amount of refrigerant
- 9 Special, 8-bearing weighing platform**
with high-capacity weighing cell (100 kg load capacity). User friendly: no calibration needed
- 10 Service-friendly low-emission vacuum pump**
with 60-hour oil change interval
- 11 Increased pressure due to heating band on the refrigerant tank,**
for complete charging of the A/C system even at high ambient temperature
- 12 Patented, low-emission used oil container**
prevents refrigerant loss during used oil purging; the refrigerant recovered with the used oil is supplied to the refrigerant tank and included in the weighing
- 13 Optional accessory:**
flushing kit for the service hoses and the manifold of the ASC. Especially recommendable where the ASC is also used on hybrid vehicles, to switch to non-conducting POE oil
- 14 USB interface included as standard on all ASC G-series A/C service units:**
convenient software and database updates by USB stick
- 14 NEW: 4 steps to a truly complete discharge –**
now made visible on the new display



CLOSE TO 100 % DISCHARGE

IN FOUR STEPS

Most A/C service units available in the market today are using three major process steps: refrigerant recovery via the compressor, evacuation of the refrigerant circuit via the vacuum pump, and refrigerant recharging. WAECO ASC Low Emission service units are using an additional process step to ensure that close to 100 % of the refrigerant can be recovered.

In this process step the vacuum pump teams up with the compressor to recover also the residual amount of refrigerant

contained in the oil. This additional step – indicated by the orange ECO LED on the new operator display – gives two major advantages. First, there's virtually no refrigerant lost or escaping into the environment. Second, the exact amount of the recovered refrigerant can be identified in the subsequent weighing. This avoids misinterpretation with regard to the tightness of the A/C system, which would otherwise lead to unnecessary troubleshooting and costly repairs.



The 4 steps of the WAECO Low Emission service process

STEP 1

Refrigerant recovery: The refrigerant is recovered from the vehicles A/C system with the help of the compressor of the A/C service unit.

STEP 2

Used oil drainage: The vacuum pump teams up with the compressor to recover also the residual amount of refrigerant contained in the oil, also during the drainage of the used oil. No refrigerant lost or escaping into the environment.

STEP 3

Vacuum phase: The vacuum pump is switched on automatically and ensures deep down evacuation of the A/C system. Since the vacuum pump is connected to the internal container of the Low Emission service unit, the refrigerant does not escape into the environment now, but is collected in the internal container.

STEP 4

Refrigerant recharging: The A/C system is charged with the vehicle-specific amount of refrigerant from the tank of the A/C service unit.



ASC 2500 G Low Emission

ALSO GREAT AS DIAGNOSIS TOOL

The ASC 2500 G Low Emission integrates all refrigerant storage components on the weighing platform. That means the complete amount of refrigerant contained in the unit can be recorded and the amount of the recovered refrigerant can be exactly determined. This in turn will tell the operator about potential leaks in the A/C system. The accurate diagnosis function of the ASC 2500 G Low

Emission is also very useful with regard to decreasing refrigerant charging amounts on modern-day vehicles. In the compact car segment we already see models with charging amounts of less than 300 g (e.g. Daihatsu Cuore). Older A/C service units won't be able to charge these systems with the required accuracy. Excessive or insufficient charging would entail major problems.



ASC 2500 G Low Emission

R 134a

- Sturdy metal housing
- Charging cylinder storage capacity: 16 kg, vacuum pump capacity: 5 cars/h
- Humidity free storage and feeding system for fresh oil and UV additive including test bottles
- Print-out of important service data, several print-outs possible
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic charging of leak detection additive
- Integrated refrigerant charging and recovery amount management
- Integrated charging amount database
- Complies with SAE J 2099 and SAE J 2788
- Close to 100 % refrigerant recovery
- Virtually 0 % service emission thanks to patented used oil container and Low Emission concept
- Personalised charging amount database
- Operator guidance via large display
- Swivel and tilt manometer panel (patented)
- Swivel-mount display and information unit (patented)
- Heated charging cylinder for high-speed charging, heat-up also possible during the charging process
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- Large recessed tray for tools
- Also suitable for hybrid vehicles if the optional flushing kit for the ASC's internal circuit was installed (see page 53)
- Patented used oil container
- USB interface
- Soft graphic display



ECO
ecologically friendly

ASC 2500 G
Instruction package
Adapter for non-returnable bottles 1/4" HD

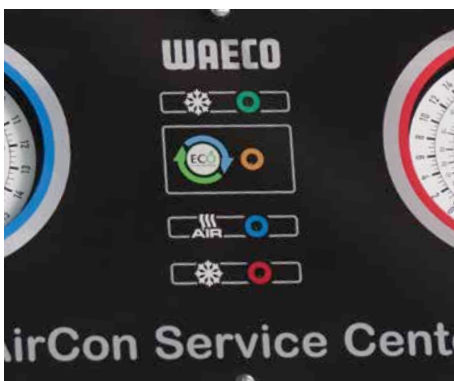
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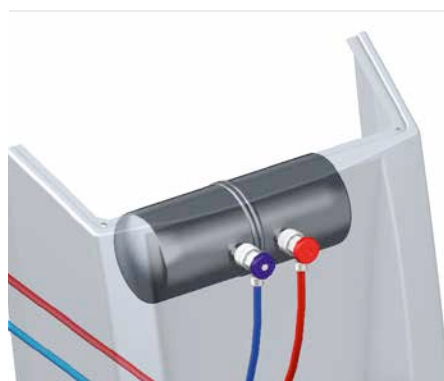
Well engineered: Patented used oil container prevents unnecessary refrigerant loss



Practical: Filter can be replaced from the outside



Complete refrigerant recovery – including the residual amount contained in the used oil



Optional: Accessory kit for service on hybrid vehicles

MY BENEFITS



Individual user code

To prevent unauthorised use of WAECO A/C service units, up to 10 user names can be programmed in combination with individual PIN codes.



Personalised charging amount database

ASC-series units give you the option to create a personalised charging amount database for 100 different vehicles.



Low Emission

Virtually no refrigerant escaping into the environment and identification of the exact amount of the recovered refrigerant in the weighing procedure avoids unnecessary troubleshooting.



USB interface

Via the USB port you can simply update the software of the service unit. Or export important data to a USB stick for further processing on a laptop or PC.



ASC 1000 G

FULLY AUTOMATIC A/C SERVICE UNIT

Fully automatic service unit for all A/C specialists. The ASC 1000 G has all it takes to perform standard service work on automotive air conditioners. The quick-start function comes in very handy in everyday workshop use. Simply enter the amount of refrigerant to be charged, make a total of three input instructions, and the unit will automatically do all the required functions:

Refrigerant recovery and recycling, residual pressure measurement, used oil drainage, evacuation, leak check, charging of fresh oil and UV additive, refrigerant charging with charging amount compensation of the service hoses.

All process steps are fully automatic and self-monitored by the system. Errors are indicated by acoustic and visual signals from the swivel-mount display unit. Software updates can simply be done with a USB stick.



WITH SPECIAL SOFTWARE FOR A/C FLUSHING TO VEHICLE MANUFACTURER'S SPECIFICATIONS

ASC 1000 G – Fully automatic A/C service unit

R 134a

- Sturdy metal housing
- Charging cylinder storage capacity: 10 kg, vacuum pump capacity: 4 cars/h
- Humidity free storage and feeding system for fresh oil and UV additive
- Print-out of important service data, several print-outs possible
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic charging of leak detection additive
- Integrated refrigerant charging and recovery amount management
- Integrated charging amount database
- Complies with SAE J 2099 and SAE J 2788
- Personalised charging amount database
- Operator guidance via large display and manometer
- Swivel and tilt manometer panel (patented)
- Heated charging cylinder for high-speed charging, heat-up also possible during the charging process
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- Large recessed tray for tools
- 500 ml used oil container for longer change intervals
- Also suitable for hybrid vehicles if the optional flushing kit for the ASC's internal circuit was installed (see page 53)
- USB interface
- Soft graphic display



ASC 1000 G
Instruction package
Adapter for non-returnable bottles 1/4" HD
Dust cover

Ref. No. 9103301843
Ref. No. 8889900001
Ref. No. 8885400035
Ref. No. 4445900081



Standard on ASC 1000 G units: humidity free storage and feeding system for fresh oil and UV additive



Data printer and USB port:
Print-out and readout of important service data



Swivel and tilt manometer panel:
Easy to read from every angle in the workshop



Rear side: filter is easy to access from the outside

MY BENEFITS



Individual user code

To prevent unauthorised use of WAECO A/C service units, up to 10 user names can be programmed in combination with individual PIN codes.



Personalised charging amount database

ASC-series units give you the option to create a personalised charging amount database for 100 different vehicles.



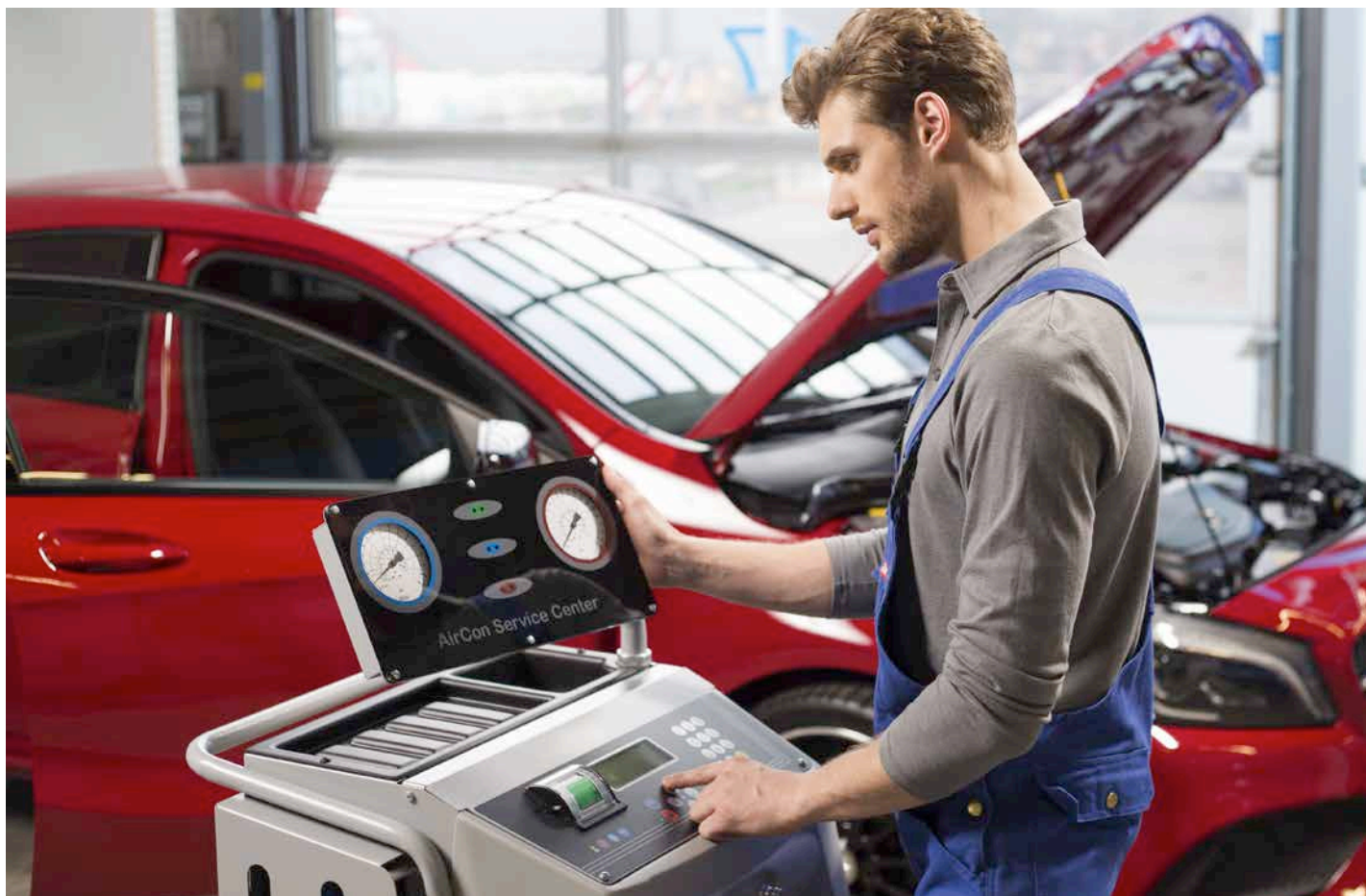
A/C service worldwide

The ASC 1000 G is also available in a 110 V – 50/60 Hz version.



USB interface

Via the USB port you can simply update the software of the service unit. Or export important data to a USB stick for further processing on a laptop or PC.



ASC 2000 G

WITH HUMIDITY FREE STORAGE AND FEEDING SYSTEM FOR FRESH OIL AND UV ADDITIVE

Ease of use at its best. Designed for professional A/C service on **trucks and cars**, the ASC 2000 G minimises operator effort and throughput time. Prior to system start the operator can read the oil level from the display.

Afterwards, the following processes are performed fully automatic:

- **Refrigerant recovery and recycling, residual pressure measurement, used oil drainage, evacuation, leak check, fresh oil and UV additive charging, refrigerant charging with charging amount compensation of the service hoses**

Additional ASC 2000 G benefits:

Large charging cylinder storage capacity (21 kg), dust cover included as standard, accurate oil management with 4 separate micro scales



WITH SPECIAL SOFTWARE FOR A/C FLUSHING TO VEHICLE MANUFACTURER'S SPECIFICATIONS

ASC 2000 G – Fully automatic A/C service unit

R 134a

- Charging cylinder storage capacity: 21 kg, vacuum pump capacity: 5 cars/h
- Humidity free storage and feeding system for fresh oil and UV additive incl. test bottles
- Print-out of important service data, several print-outs possible
- Dust cover included
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic charging of leak detection additive
- Integrated refrigerant charging and recovery amount management
- Integrated charging amount database
- Complies with SAE J 2099 and SAE J 2788
- Personalised charging amount database
- Operator guidance via large display and manometer
- Swivel and tilt manometer panel (patented)
- Heated charging cylinder for high-speed charging, heat-up also possible during the charging process
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- 500 ml used oil container for longer change intervals
- Also suitable for hybrid vehicles if the optional flushing kit for the ASC's internal circuit was installed (see page 53)
- USB interface
- Soft graphic display



ASC 2000 G
Instruction package
Adapter for non-returnable bottles 1/4" HD

Ref. No. 9103301841
Ref. No. 8889900001
Ref. No. 8885400035



Standard on ASC 2000 G units: humidity free storage and feeding system for fresh oil and UV additive



Data printer and USB port:
Print-out and readout of important service data



Swivel and tilt manometer panel:
Easy to read from every angle in the workshop



Rear side: filter is easy to access from the outside

MY BENEFITS



Individual user code

To prevent unauthorised use of WAECO A/C service units, up to 10 user names can be programmed in combination with individual PIN codes.



Personalised charging amount database

ASC-series units give you the option to create a personalised charging amount database for 100 different vehicles.



A/C service worldwide

The ASC 2000 G is also available in a 110 V – 50/60 Hz version.



USB interface

Via the USB port you can simply update the software of the service unit. Or export important data to a USB stick for further processing on a laptop or PC.



ASC 2000RPA

WITH FULLY AUTOMATIC REFRIGERANT ANALYSIS

The unnoticed presence of contaminated refrigerant in a vehicle A/C system or refrigerant bottle runs the risk of contaminating all the vehicles serviced afterwards. The workshop owner may face substantial damage claims as a result. A refrigerant analysis tool prevents the trouble.

RPA stands for **Refrigerant Purity Analyser** – a system which checks whether the vehicle A/C system and A/C service unit really contain pure R 134a and nothing else. Besides R 134a, the ASC 2000RPA also recognises R 12, R 22, HC and air.

The most frequent reasons for refrigerants contamination are **refrigerants imported from the Far East or the presence of air in the vehicle A/C system.**

A vehicle A/C system can only operate successfully when filled with pure R 134a. Air entering the system means a serious problem. **Possible consequences: Increased operating pressure and functional problems of the A/C system. Corrosion caused by**

the humidity admitted with the air. Substantial reduction of the refrigeration performance. Substantial strain on the compressor suction and pressure valves caused by increased pressure in the system.

Nitrogen leak check

In order to meet our commitment to protect our environment it is necessary to release as little refrigerant as possible into the atmosphere. **In addition to the existing, fully automatic vacuum leak test function integrated in the service unit it is possible to admit nitrogen to the system.** This method eliminates the drawback of leak tests solely by vacuum (components such as A/C tubes might contract and thus close a leak). **Exposure to pressurised nitrogen during A/C service tells you immediately whether the system is tight.** The test is carried out fully automatic by the ASC 2000RPA.

ASC 2000RPA – Fully automatic A/C service unit

R 134a

- Sturdy metal housing
- Fully automatic SAE gas analysis (R 134a, R 12, R 22, HC, air)
- Charging cylinder storage capacity: 21 kg, vacuum pump capacity: 5 cars/h
- Optional: humidity free storage and feeding system for fresh oil and UV additive incl. test bottles
- Print-out of important service data, several print-outs possible
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Fully automatic nitrogen leak check
- Automatic charging of leak detection additive
- Integrated refrigerant charging and recovery amount management
- Integrated charging amount database
- Complies with SAE J 2099 and SAE J 2788
- Personalised charging amount database
- Operator guidance via large display and manometer
- Swivel and tilt manometer panel (patented)
- Heated charging cylinder for high-speed charging, heat-up also possible during the charging process
- Robust weighing technology for the refrigerant tank allows service work also in mobile applications
- Special air conditioner flush function
- Large recessed tray for tools
- 500 ml used oil container for longer change intervals
- Dust cover included in the delivery kit



ASC 2000RPA
Instruction package
Adapter for non-returnable bottles 1/4" HD

Ref. No. 8885200087
Ref. No. 8889900001
Ref. No. 8885400035



Reliable: Information displayed after refrigerant analysis



User-friendly: Intake filter of the analysis unit is easy to access



Fully automatic: Nitrogen leak check



Optional: Gas cylinder trolley

MY BENEFITS



Fully automatic testing of refrigerant purity

The ASC 2000RPA A/C service unit ensures that the A/C system only contains pure R 134a, neither contaminated with banned refrigerants nor mixed with air.

Prior to the actual recycling process the service unit automatically removes and analyses a small refrigerant sample (9.5 g). The results are shown on the unit display. The operator receives a significant, qualified assessment of the refrigerant in the A/C system connected to the service station and can exactly determine what repairs or maintenance may be required.

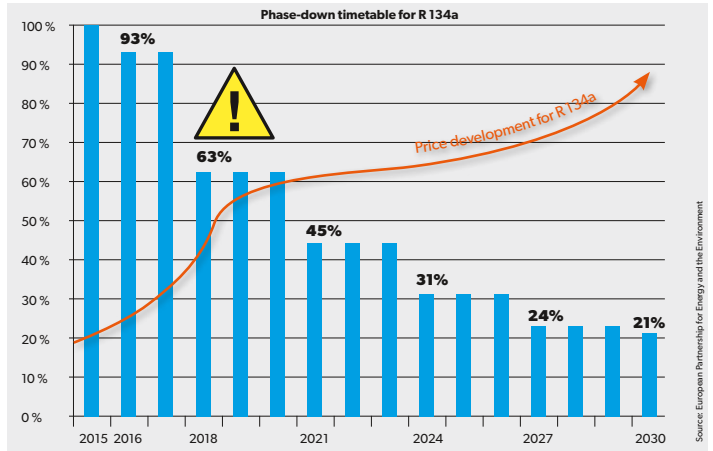
If the refrigerant is fine, the ASC 2000RPA continues its fully automatic programme.

THE NEW EU F-GAS REGULATION

The new F-gas regulation of the European Union has been in force since January 1st 2015. Aiming at a reduction of the use of fluorinated greenhouse gases, it regulates, among other things, the import quantities for the marketing of R 134a refrigerant. One thing is for sure already: R 134a is going to run short and will become very expensive. Refrigerant loss will be something no workshop can afford in the future.

Invest in a low-emission service unit now to be able to offer your customers an attractive and cost-efficient A/C service in the long run. Dometic WAECO's well engineered low-emission concept keeps you a step ahead of your competitors.

Years	Reduction
2015	100%
2016 – 2017	93%
2018 – 2020	63%
2021 – 2023	45%
2024 – 2026	31%
2027 – 2029	24%
2030	21%



ASC 3500 G Low Emission PROFITABLE A/C SERVICE ON LARGE VEHICLES

The new ASC 3500 G Low Emission A/C service unit offers all the benefits of the WAECO Low Emission technology: close to 100 % refrigerant recovery with our well proven four-step process, virtually zero harmful refrigerant emission into the atmosphere. Plus, not forgetting, an exact identification of the recovered amount of refrigerant, which avoids laborious (and unnecessary) troubleshooting and repairs.

Integrating a powerful vacuum pump with a flow rate of 192 litres

per minute, the ASC 3500 G Low Emission qualifies for highly efficient A/C service on large vehicles, such as buses, trains and helicopters. This is where the WAECO Low Emission concept pays off in considerable savings, because the overall amount of refrigerant to be recovered per service run is much larger than with car A/C systems. An additional fluid pump ensures fast refrigerant recharging.

ASC 3500 G Low Emission

R 134a

- Sturdy metal housing
- Charging cylinder storage capacity: 26 kg, vacuum pump capacity 192 l/min
- Performance of the hermetic compressor 0,6 kW
- Humidity free storage and feeding system for fresh oil and UV additive including test bottles
- Print-out of important service data, several print-outs possible
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic charging of leak detection additive
- Integrated refrigerant charging and recovery amount management
- Integrated charging amount database
- Complies with SAE J 2099 and SAE J 2788
- Close to 100 % refrigerant recovery
- Virtually 0 % service emission thanks to patented used oil container and Low Emission concept
- Personalised charging amount database
- Operator guidance via large display
- Swivel and tilt manometer panel (patented)
- Swivel-mount display and information unit (patented)
- Heated charging cylinder for high-speed charging, heat-up also possible during the charging process
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- Large recessed tray for tools
- Also suitable for hybrid vehicles if the optional flushing kit for the ASC's internal circuit was installed (see page 53)
- Service hoses 8 m
- Patented used oil container
- USB interface and soft graphic display



ASC 3500 Low Emission
Instruction package
Adapter for non-returnable bottles 1/4" HD

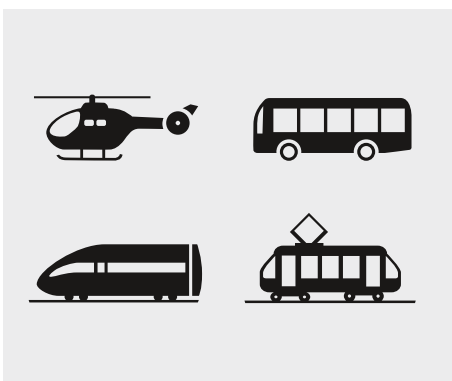
Ref. No. 9103301879
Ref. No. 8889900001
Ref. No. 8885400035



Integrated fluid pump:
For charging high-volume A/C systems



Complete refrigerant recovery – including the residual amount contained in the used oil



The perfect choice for A/C service on buses, trains, helicopters and special applications



Optional: Connection kit for buses
(Ref. No. 8885400290)

MY BENEFITS



Individual user code

To prevent unauthorised use of WAECO A/C service units, up to 10 user names can be programmed in combination with individual PIN codes.



Personalised charging amount database

ASC-series units give you the option to create a personalised charging amount database for 100 different vehicles.



Low Emission

Virtually no refrigerant escaping into the environment and identification of the exact amount of the recovered refrigerant in the weighing procedure avoids unnecessary troubleshooting.



USB interface

Via the USB port you can simply update the software of the service unit. Or export important data to a USB stick for further processing on a laptop or PC.



ASC 3000 G

HIGH-VOLUME AIRCON SERVICE CENTER FOR BUSES, TRAINS, HELICOPTERS AND CUSTOM APPLICATIONS

Time is valuable, especially when it comes to air conditioning service on large vehicles such as **buses and trains** where downtimes are extremely costly for the operators. Speed and reliability are vital. Key service tasks such as refrigerant recovery, evacuation and refrigerant recharging need to be performed within a tight timeframe. The ASC 3000 G perfectly meets these requirements. The **192-litre vacuum pump is exactly designed for bus applications**. An additional fluid pump ensures fast refrigerant recharging.

Using the optional flush kit (p. 53) the A/C service unit can be cleaned inside after use to remove residual oil and UV additive and avoid cross contamination.

The following processes are performed fully automatically:

- **Refrigerant recovery and recycling, residual pressure measurement, used oil drainage, evacuation, leak check, fresh oil and UV additive charging, refrigerant charging with charging amount compensation of the service hoses.**

The ASC 3000 G optionally features the patented fresh oil and UV additive feeding system. It allows moisture-free and clean storage of refrigerant oils even over longer periods of time and thus cuts A/C service costs.



**ALSO SUITABLE FOR SERVICE ON CARS AND TRUCKS
WHEN COMBINED WITH THE HYBRID FLUSH KIT**

ASC 3000 G – Fully automatic A/C service unit

R 134a

- High capacity compressor
- Charging cylinder storage capacity: 26 kg, vacuum pump capacity 192 l/min
- Performance of the hermetic compressor 0,6 kW
- Integrated fluid pump for high-volume refrigerant charging
- 2-stage vacuum pump designed in cooperation with utility vehicle manufacturers
- Print-out of important service data, several print-outs possible
- Optional: humidity free storage and feeding system for fresh oil and UV additive
- Dustcover included in the delivery kit
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check and charging of leak detection additive
- Complies with SAE J 2099 and SAE J 2788
- Integrated refrigerant charging and recovery amount management
- Integrated charging amount database
- Personalised charging amount database
- Operator guidance via large display and manometer, large recessed tray for tools
- Swivel and tilt manometer panel (patented)
- Heated charging cylinder for high-speed charging, heat-up also possible during the charging process
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- 500 ml used oil container for longer change intervals
- Service hoses 8 m
- USB interface
- Soft graphic display



ASC 3000 G
Instruction package
Adapter for non-returnable bottles 1/4" HD

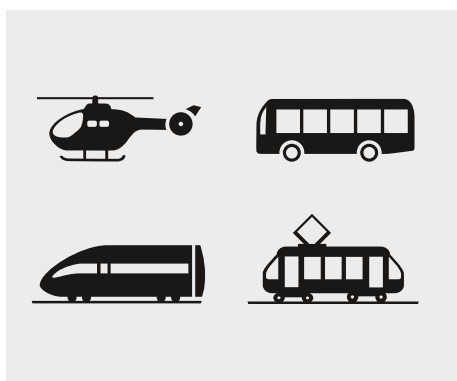
Ref. No. 9103301845
Ref. No. 8889900001
Ref. No. 8885400035



Integrated fluid pump:
For charging high-volume A/C systems



Optional: Connection kit for buses
(Ref. No. 8885400290)



The perfect choice for A/C service on buses, trains, helicopters and special applications



Optional: humidity free storage and feeding system for fresh oil and UV additive

MY BENEFITS



Individual user code

To prevent unauthorised use of WAECO A/C service units, up to 10 user names can be programmed in combination with individual PIN codes.



Personalised charging amount database

ASC-series units give you the option to create a personalised charging amount database for 100 different vehicles.



Simply perfect

Easy-to-read manometer, humidity free storage and feeding system for fresh oil. The unit is suitable for mobile use and complies with automotive manufacturers' requirements.



USB interface

Via the USB port you can simply update the software of the service unit. Or export important data to a USB stick for further processing on a laptop or PC.

Connection kit for buses

R 134a

For connection of high-volume service units to bus A/C systems

- Fits ASC 3500 G Low Emission and ASC 3000 G

Connection kit for buses

Ref. No. 8885400290



POE Oil SE 55

R 134a

Compressor oil, 500 ml

- Moisture-free and clean storage, prevents penetration of contaminants into the A/C service unit

POE Oil SE 55

Ref. No. 8887200028



Universal oil for the coating of O-rings in vehicle A/C systems

- Small and compact can (100 ml) with brush in the cap
- New O-rings need to be coated with oil so that they achieve a good sealing effect when sliding. The threads must also be coated
- Compatible with nearly all lubricants
- Suitable for all kinds of refrigerants
- Does not absorb moisture (non-hygroscopic)

Universal oil for the coating of O-rings in vehicle A/C systems

Ref. No. 8887200047



Solenoid valve opener

Tool for opening solenoid valves

- For use on buses
- Opens locked refrigerant circuits
- Can be used for 18 mm / 10 mm solenoid valve coils
- Small and handy, fits into every pocket and thus saves time

Solenoid valve opener

Ref. No. 8885300131



example of use

Marksman II Ultrasonic leak detection tool

Ultrasonic leak detector for pinpoint of refrigerant leaks of A/C or air leaks

- Convenient, easy-to-use, touch-control sensitivity pad and power switch
- 5-LED signal-intensity indicator and audible alarm easily pinpoint the exact problem source
- Internal Noise Control (INC) ensures tool is unaffected by ambient noise.
- Self-adjusting Automatic Gain Control (AGC) circuitry enhances sensitivity and simplifies operation
- Precision-engineered hollow air probe helps isolate leak sources in cramped areas

Scope of delivery: Ultrasonic receiver, ultrasonic emitter, hollow air probe, contact probe, headphones and rugged carrying case, 2 batteries (Type D, mono cells)

Marksman II

Ref. No. TP-9367



Easy repair set for aluminium refrigerant pipes

All you need for repairing refrigerant pipes in a single set!

- Universal set for mobile repairs on original pipes
- Easy, fast and low-cost repair of original pipes – no need to wait for spares
- Simple adaptation to hose connections
- Compact solution – complete with matching tools
- 5 sets in a sturdy transport box, perfect for mobile use
- Sets can be taken out individually
- Fast access to various parts, no need to search around for matching parts
- Spare connectors and pipes can be ordered individually

For small buses



Easy repair set, 100 items

Ref. No. 8885300150



**CHECK OUT OUR COMPLETE RANGE AT
WWW.AIRCONSERVICE.EU/EASY-REPAIR**

Nitrogen pressure reducer

R 134a

For controlled and safe admission of nitrogen to A/C systems (pressure test)

- Adjustment range from 0 to 20 bar, ideal for air conditioner inspections (§ 5 of the German Chemicals Climate Protection Ordinance)

Hose set for safe connection to vehicle A/C system

Scope of delivery hose set: service quick coupler, 1.8 m service hose for low-pressure side, 1/4" SAE x 1/2" ACME adapter

Nitrogen pressure reducer

Ref. No. 8885400135

Forming gas pressure reducer

Ref. No. 8885400172

Hose set for nitrogen pressure reducer

Ref. No. 8885400136



Hose set

Multi-gas leak detector, suitable for forming gas

R 134a

Microprocessor controlled sensor electronics with multi-channel signal recognition

- Consistent sensitivity throughout the sensor's lifetime
- Can also be set for heavily contaminated environments (e.g. engine compartment)
- Complies with all international standards relevant for vehicle applications: SAE J2913 for R 1234yf, SAE J2791 for R 134a, EN14624:2005. Identifies all FC- and CFC-based refrigerants and blends as well as SF6

Multi-gas leak detector

Ref. No. 8885100124



12 THINGS

YOU OUGHT TO KNOW ABOUT R 1234YF SERVICE UNITS

Time and time again we see A/C service units being offered in the marketplace that do not meet the technical requirements for use

with R 1234yf. Here are some things for you to consider, just to be on the safe side:

1 Fully automatic self-test

R 1234yf service units are subject to special safety regulations. The refrigerant must not escape into the atmosphere, therefore the ASC 5500RPA from WAECO automatically performs a leak check in regular intervals. This ensures that potential minor leaks in the system will not remain undetected.

2 Service couplers with clearance ventilation

The service connections on R 1234yf air conditioners are different from those on R 134a systems. This eliminates the risk of confusion when connecting the service equipment. Service couplers on R 1234yf systems must have what is called a "ventilated clearance" to ensure that no refrigerant escapes from the air conditioner even when you have a defective Schrader valve.

3 Clearly recognisable service equipment

A/C workshops are most likely to have two different A/C service units in the future, because R 134a and R 1234yf are not compatible with each other. To avoid confusion right from the start, the differences between the units should be clearly visible.

4 Oil separator for gas identifier

Protects you from costly repairs! For more information refer to page 43.

5 Integrated refrigerant analysis / safe and smooth process flow

R1234yf is very sensitive to cross contamination with other refrigerants. Therefore, it is mandatory to use analysis equipment to check the refrigerant purity. You can save time if the analysis tool is already integrated in the service unit. Also, it is safer because the analysis is always done automatically.

6 Low Emission

The low-emission technology prevents workshop staff from being exposed to illegally high concentrations of R 1234yf.

7 External switch-on delay

R 1234yf is inflammable under certain conditions. Therefore, the system start will only activate the external fan at first. After the fan has been running for 35 seconds, the voltage is passed on to the system. This guarantees there's no inflammable mixture contained in the system when the electrical components are enabled.

8 External ventilation

Prior to system start-up, the service unit is ventilated upon pressing the ON button. For that purpose the ASC 5500RPA features large ventilation holes in the base. It only makes sense to use an external fan that draws fresh air in as a fan fitted inside the unit might lead to an inflammable mixture.

9 Easy-to-maintain special filter

Electronic change-filter indicator: after a certain amount of refrigerant recovered the system automatically tells you it's time to replace the filter. The filter is accessible from the outside for easy maintenance.

10 Get everything from one source

It's not enough to have an A/C service unit and maintain a stock of refrigerant. A good supplier will also provide all the consumables required for A/C service, such as oils and leak detection additives. Please bear in mind that PAG oils and ester oils for R 134a are not suitable for use in R 1234yf A/C systems!

11 Avoid costly refrigerant loss

It can be expected that the price for R 1234yf will be considerably higher than that for R 134a – another reason why refrigerant loss should be avoided. Conventional A/C service units may lose up to 100 grams of refrigerant per use through the vacuum pump and during oil recovery. This is all different with the ASC 5500RPA from WAECO. Based on the low-emission principle, it has a refrigerant loss rate of close to zero %.

12 Connection for external refrigerant recovery



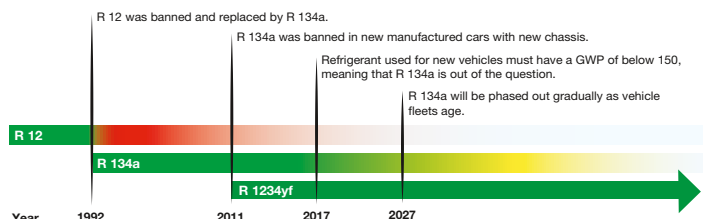
IS YOUR WORKSHOP READY FOR R 134A AND R 1234YF?

What do you know about R 1234yf?

R 1234yf is the new refrigerant for passenger cars. R 1234yf was introduced by several car manufacturers for new car models in 2011.

What happens with R 134a?

R 134a will remain on the market for decades. R 134a will still be used in other vehicles and the aftermarket. R 134a is banned in new cars with new chassis manufactured after 2010. R 134a will be banned in new cars manufactured 2017.



OUR CONCEPT FOR SAFE SERVICE ON R 1234YF A/C SYSTEMS

With the ASC 5500RPA G Low Emission, Dometic WAECO offers a fully automatic unit for service on R 1234yf A/C systems, it is designed to meet the highest demands on operating safety and economy.

The concept was developed in cooperation with TÜV Rheinland and the working group of German vehicle manufacturers. Well thought-out safety features ensure the process safety necessary for dealing

with the new R 1234yf refrigerant. An integrated analysis module checks the refrigerant purity prior to recovery. During an automatic pressure test all internal components are inspected for tightness before service work starts. A switch-on delay, combined with an external ventilation system, makes sure there is no flammable mixture in the service unit.

1 Connecting piece

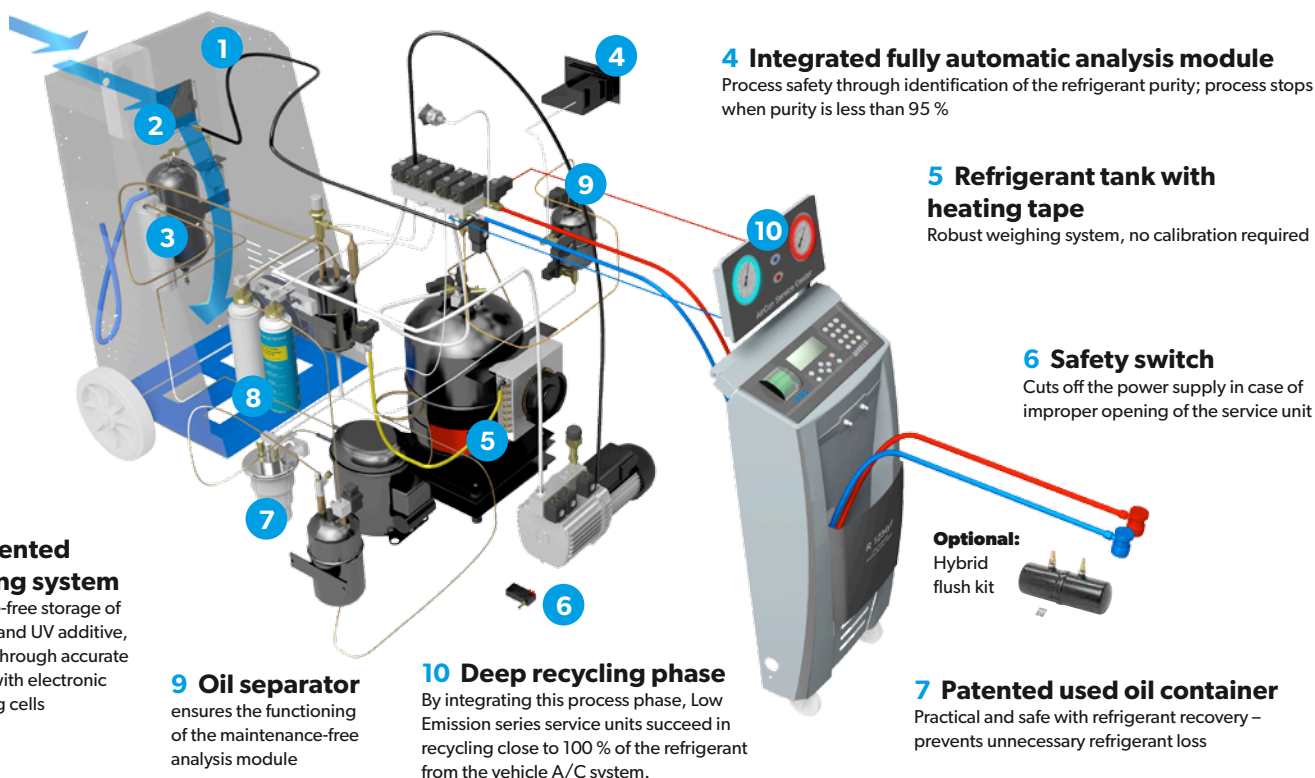
for refrigerant disposal when the display reads "not OK" (in case of less than 95 % refrigerant purity)

2 External controlled ventilation concept

Ensures there are no flammable mixtures in the service unit

3 Maintenance filter

accessible from the outside





ASC 5500RPA Low Emission

LOW EMISSION SERVICE UNIT FOR R 1234YF WITH INTEGRATED GAS IDENTIFIER

They may be only a few, but they are there – the first new vehicle models with A/C systems prepared for the use of R 1234yf refrigerant. Brand-bound motor garages, in particular, are obliged to get prepared for servicing these systems. Against this backdrop WAECO's AirCon professionals have designed, in close cooperation with the automotive industry, the ASC 5500RPA service unit.

As R 1234yf is very sensitive to contamination with other refrigerants, **the ASC 5500RPA was fitted with an integrated analysis tool that checks the refrigerant purity.**

Designed inside out for use with R 1234yf refrigerant, the ASC 5500RPA meets fire regulations and offers all the benefits known from the "classic" models in the ASC series.

A/C service cost savings with low-emission concept

A/C service R 1234yf without low-emission concept

Average amount of refrigerant charged into the A/C system	600 g	
Average market price for R1234yf refrigerant	130,00 € / kg	
Refrigerant lost during used oil purging	25 g	3,25 €
Refrigerant recovered from the A/C system	95 %	3,90 €
Refrigerant lost per service		7,15 €
For 3 x A/C service per week, the annual loss on refrigerant is		1.115,40 €

A/C service R 1234yf with low-emission concept

Average amount of refrigerant charged into the A/C system	600 g	
Average market price for R1234yf refrigerant	130,00 € / kg	
Refrigerant lost during used oil purging	0 g	0,00 €
Refrigerant recovered from the A/C system	99,9 %	0,08 €
Refrigerant lost per service		0,08 €
For 3 x A/C service per week, the annual loss on refrigerant is		12,48 €

Annual savings per year with low-emission concept 1.102,92 €, Annual savings in 8 years with low-emission concept 8.823,36 €

ASC 5500RPA Low Emission

R 1234yf

- Sturdy metal housing
- Charging cylinder storage capacity: 16 kg, vacuum pump capacity: 5 cars/h
- Optional: humidity free storage and feeding system for fresh oil and UV additive
- Integrated fully automatic refrigerant analysis function
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic leak check prior to service start
- Automatic charging of leak detection additive
- Integrated refrigerant charging and recovery amount management
- Integrated charging amount database
- Complies with SAE J 2099, 2788 and 2843
- Close to 100 % refrigerant recovery
- Personalised charging amount database
- Operator guidance via large display
- Heated charging cylinder for high-speed charging, heat-up also possible during the charging process
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- Large recessed tray for tools
- Also suitable for hybrid vehicles
- Patented used oil container
- Including adapter for non-returnable bottles 1/4" HD



ASC 5500RPA
Instruction package

Ref. No. 9103301870
Ref. No. 8889900001



Practical: Innovative used oil container with refrigerant return system



Complete refrigerant recovery – including the residual amount contained in the used oil



Rear side: Filter is easy to access from the outside (as required by TÜV)



Safe and secure: Electronic fan control

MY BENEFITS

Extra safety

The service unit comes with integrated refrigerant analysis function. Explosion protection: hazard analysis performed by an independent test institute.

Automatic, regular leak check

Switch-on delay and external ventilation

R 1234yf is flammable under certain conditions. Therefore, the system start will only activate the external fan. After the fan has been running for 35 seconds, the voltage is passed on to the system.

Low-emission concept

Close to 100 % refrigerant recovery.



ASC 5100 G

SERVICE UNIT FOR R 1234yf

ENTRY-LEVEL MODEL WITH UPGRADING OPTIONS

Are you just starting to provide A/C service on R 1234yf air conditioners, with only a few service orders per month? Here is a low-cost service unit that gives you all the features required for safe work with the new refrigerant: e.g. two fans on the front and rear of the unit for the mandatory forced ventilation. The new ASC 5100 G performs all service processes automatically achieving a refrigerant recycling rate of at least 95 %. The purity of the recovered refrigerant complies with the SAE J 2099 standard.

Expecting more orders in the future? You can easily upgrade your entry-level service unit at a later date – e.g. with a printer for convenient documentation, or a heating belt for the charging cylinder. A USB port and a soft graphic display that can also display special characters are already included.



UPGRADING OPTIONS: PRINTER, HEATING TAPE, HUMIDITY FREE STORAGE AND FEEDING SYSTEM FOR FRESH OIL AND UV ADDITIVE

ASC 5100 G – Entry-level automatic A/C service unit

R 1234yf

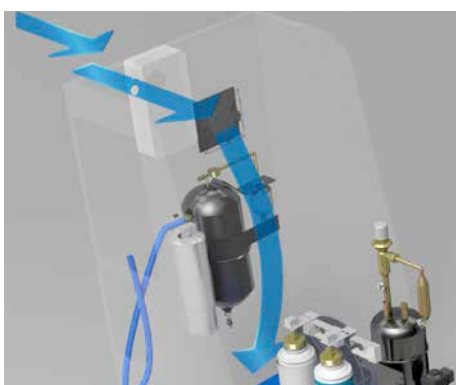
- Charging cylinder storage capacity: 9 kg
- Automatic refrigerant recycling, oil or UV additive management controlled by load cell
- Purity of recovered refrigerant according to SAE J 2099
- Refrigerant recycling rate: at least 95 %
- Forced ventilation with two fans at the front and rear
- Soft graphic display – can also display special characters
- USB interface
- Heavy-duty load cell, no transport lock necessary
- 3 m service hoses
- Optional: dust cover
- Optional: humidity free storage and feeding system for fresh oil and UV additive
- Optional: printer for print-out of important service data
- Optional: heating belt for the charging cylinder

Available
by the start
of season



ASC 5100 G
Instruction package
Optional: heating belt

Ref. No. 9103301878
Ref. No. 8889900001
Ref. No. 8885200277



Air flow concept:
two fan air flow concept for maximum ventilation



ASC 5100 G; big size graphic display



Fresh oil bottle on weighing cell,
unique in entry level field



Used oil drain bottle on weighing cell,
unique in entry-level field

MY BENEFITS



Soft graphic display

The soft graphic display can also display special characters such as Cyrillic or Chinese script.



USB interface

Via the USB port you can simply update the software of the service unit. Or export important data to a USB stick for further processing on a laptop or PC.



Complies with SAE J 2099

The purity of the recovered refrigerant complies with the SAE J 2099 standard.



Upgrading options

The ASC 5100 G can be upgraded with a printer and a heating tape. The unit is also prepared for the humidity free storage and feeding system for fresh oil and UV additive.



ASC 5300 G

SERVICE UNIT FOR R 1234yf WITH OPTIONAL GAS ANALYZER

Are you in the market for an A/C service unit for the new R 1234yf refrigerant? Do you want one from a renowned manufacturer without spending more money than necessary? Then this basic version of the ASC 5300 G could be just the right thing for you. The unit integrates a wealth of WAECO know-how and experience. Professional A/C service work is performed fully automatically, with

little operator effort. All standard ASC-series features are provided, including refrigerant charging and recovery management, personalised charging amount database and automatic vacuum check. The ASC 5300 G can be added with an external refrigerant analysis tool.

ASC 5300 G – Fully automatic A/C service unit

R 1234yf

- Sturdy metal housing
- Charging cylinder storage capacity: 16 kg, vacuum pump capacity: 5 cars/h
- Humidity free storage and feeding system for fresh oil and UV additive
- Print-out of important service data, several print-outs possible
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic charging of leak detection additive
- Integrated refrigerant charging and recovery amount management
- Integrated charging amount database
- Complies with SAE J 2099, 2788 and 2843
- Personalised charging amount database
- Operator guidance via large display
- Swivel and tilt manometer panel (patented)
- Heated charging cylinder for high-speed charging, heat-up also possible during the charging process
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- 500 ml used oil container for longer change intervals
- Large recessed tray for tools
- Also suitable for hybrid vehicles
- USB interface
- Soft graphic display
- Including adapter for refrigerant bottles
- Optional: prepared for refrigerant purity analysis tool; easy retrofitting – plug & play



ASC 5300 G
Instruction package

Ref. No. 9103301869
Ref. No. 8889900001

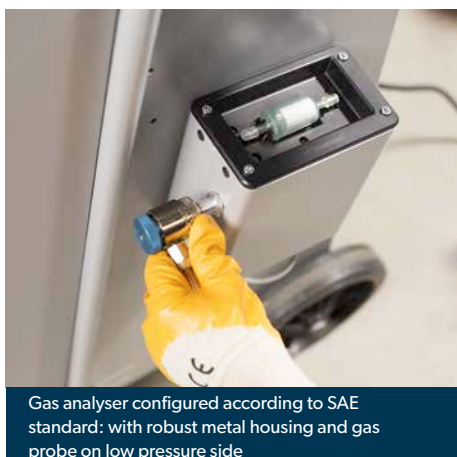
Gas analyser

R 1234yf

Optional: gas analyser SAE

Gas analyser

Ref. No. 8885200278



Gas analyser configured according to SAE standard: with robust metal housing and gas probe on low pressure side



Safe and secure: electronic fan control

MY BENEFITS

Air flow

Controlled air flow and a high-performance fan with special electronics guarantee adequate ventilation.

Personalised charging amount database

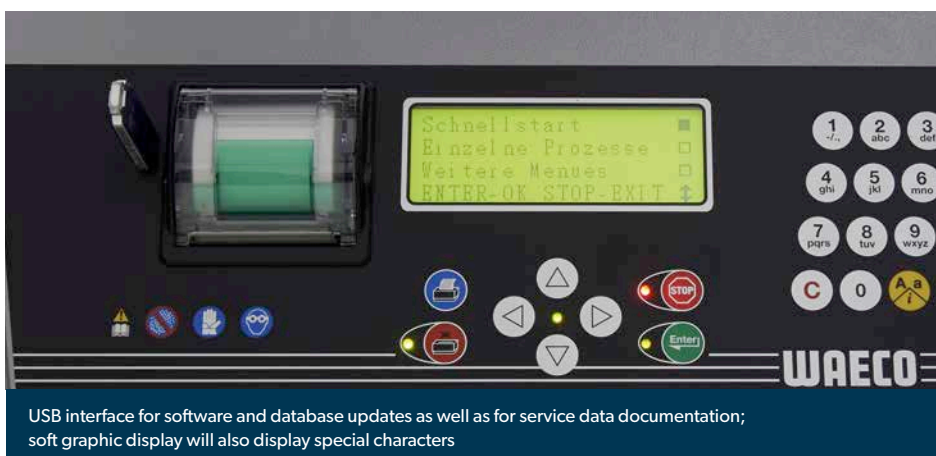
ASC-series units give you the option to create a personalised charging amount database for 100 different vehicles.

Soft graphic display

The soft graphic display can also display special characters such as Cyrillic or Chinese script.

USB interface

Via the USB port you can simply update the software of the service unit. Or export important data to a USB stick for further processing on a laptop or PC.



USB interface for software and database updates as well as for service data documentation; soft graphic display will also display special characters

AirCon Service Center – R 134a	ASC 1000 G	ASC 2000 G	ASC 2000RPA
Power supply	220/240 V – 50/60 Hz *	220/240 V – 50/60 Hz *	220/240 V – 50/60 Hz
Suitable for refrigerant	R 134a	R 134a	R 134a
Ref. No.	9103301843	9103301841	8885200087
Recovery / recycling			
Purity of recovered refrigerant according to SAE J 2099	●	●	●
Refrigerant recovery rate in kg/h	30	30	30
Vacuum pump capacity	4 cars/h	5 cars/h	5 cars/h
Performance of the hermetic compressor in kW	0,32	0,32	0,32
Dry filter capacity in kg	150	150	150
Refrigerant recycling rate	min. 95 %	min. 95 %	min. 95 %
Can be used as diagnosis tool	–	–	–
Charging			
Charging cylinder/useful capacity in kg	11 kg	21 kg	21 kg
Charging amount indicated by	Display	Display	Display
Processes			
Refrigerant analysis	–	–	automatic
Recovery/recycling	automatic	automatic	automatic
Purging of non-condensable gases	automatic	automatic	automatic / electronic
Purging of used oil	automatic	automatic	automatic
Evacuation	automatic	automatic	automatic
Vacuum check	automatic	automatic	automatic
Nitrogen leak check	–	–	automatic
Injection of leak detection additive	automatic	automatic	automatic
Injection of oil into the A/C system	automatic	automatic	automatic
Refrigerant charging	automatic	automatic	automatic
Control panel			
High/low pressure indicated by	Manometer	Manometer	Manometer
Vacuum indicated on	Display	Display	Display
Total process control via display	●	●	●
Option to set the evacuation time	●	●	●
Protocol print-out with printer	●	●	●
USB connection for software- and database updates	●	●	–
Printer	●	●	●
Scope of delivery			
Service hoses (SAE standard), 3 m	●	●	●
Service hoses (SAE standard), 8 m	–	–	–
Valve adapter for WAECO refrigerant bottles	●	●	●
Operating instructions	●	●	●
Adapter for 500 ml fresh oil and UV tracer dye bottle	●	●	●
Used oil container (500 ml)	●	●	●
Hermetically closed used oil container	–	–	–
Heated refrigerant tank / fluid pump (F)	● / –	● / –	● / –
Dust cover	–	●	●
Goggles / safety gloves	●	●	●
Test bottles UV additive for approx. 10 applications	●	●	–
Bottle of fresh PAG oil ISO 46, 500 ml	8887200013 ●	8887200013 ●	–
Bottle of fresh PAG oil ISO 100, 500 ml	8887200014 ●	8887200014 ●	–
Bottle of fresh POE oil SE 55, 500 ml	–	–	–
Accessories/consumables			
Adapter for 500 ml bottle of fresh oil and UV tracer dye	4440600026	4440600026	4440600026
Used oil container, 500 ml	4440600033	4440600033	4440600033
Dust cover	4445900081	4445900081	4445900081
Universal flush container R 134a	8885200088	8885200088	8885200088
Spare roll of thermal paper for printer (sales pack 4 pcs.)	4445900088	4445900088	4445900088
R 134a service hose for HP side (SAE standard), 5 m	8885100026	8885100026	8885100026
R 134a service hose for LP side (SAE standard), 5 m	8885100025	8885100025	8885100025
Service coupler high pressure	8885400027	8885400027	8885400027
Service coupler low pressure	8885400026	8885400026	8885400026
Dimensions			
W x H x D (mm)	560 x 1300 x 650	560 x 1300 x 650	560 x 1300 x 650
Weight (kg)	95	100	100

* also available as 110-volt version

ASC 2500 G Low Emission	ASC 3000 G	ASC 3500 G Low Emission
220/240 V – 50/60 Hz	220/240 V – 50/60 Hz	220/240 V – 50/60 Hz
R 134a	R 134a	R 134a
9103301871	9103301845	9103301879
●	●	●
30	40	40
5 cars/h	192 l/min.	192 l/min.
0,32	0,6	0,6
150	150	150
Close to 100 %	min. 95 %	Close to 100 %
●	–	●
15 kg	26 kg	26 kg
Display	Display	Display
–	–	–
automatic	automatic	automatic
automatic / electronic	automatic	automatic/electronic
automatic	automatic	automatic
automatic	automatic	automatic
automatic	automatic	automatic
–	–	–
automatic	automatic	automatic
automatic	automatic	automatic
automatic	automatic	automatic
Manometer	Manometer	Manometer
Display	Display	Display
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
–	–	–
●	–	●
● / –	● / F	● / F
●	●	●
●	●	●
●	–	–
8887200013 ●	–	–
8887200014 ●	–	–
–	●	●
4440600026	4440600026	4440600026
4440600131	4440600033	4440600131
4445900081	4445900081	4445900081
8885200088	8885200088	8885200088
4445900088	4445900088	4445900088
8885100026	8885100026	8885100026
8885100025	8885100025	8885100025
8885400027	8885400027	8885400027
8885400026	8885400026	8885400026
560 x 1300 x 650	560 x 1300 x 650	560 x 1300 x 650
100	110	110

AirCon Service Center – R 1234yf	ASC 5100 G	ASC 5300 G	ASC 5500PA
Power supply	220/240 V – 50/60 Hz	220/240 V – 50/60 Hz	220/240 V – 50/60 Hz
Suitable for refrigerant	R 1234yf	R 1234yf	R 1234yf
Ref. No.	9103301878	9103301869	9103301870
Recovery / recycling			
Purity of recovered refrigerant according to SAE J 2099	●	●	●
Refrigerant recovery rate in kg/h	30	30	30
Vacuum pump capacity	5 cars/h	5 cars/h	5 cars/h
Performance of the hermetic compressor in kW	0,32	0,32	0,32
Dry filter capacity in kg	150	150	150
Refrigerant recycling rate	min. 95 %	min. 95 %	Close to 100 %
Can be used as diagnosis tool	–	–	●
Charging			
Charging cylinder/useful capacity in kg	9 kg	15 kg	15 kg
Charging amount indicated by	Display	Display	Display
Processes			
Refrigerant analysis	–	extern/optional	integrated/automatic
Recovery/recycling	automatic	automatic	automatic
Purging of non-condensable gases	automatic	automatic / electronic	automatic / electronic
Purging of used oil	automatic	automatic	automatic
Evacuation	automatic	automatic	automatic
Vacuum check	automatic	automatic	automatic
Nitrogen leak check	–	–	–
Injection of leak detection additive	–	automatic	automatic
Injection of oil into the A/C system	automatic	automatic	automatic
Refrigerant charging	automatic	automatic	automatic
Control panel			
High/low pressure indicated by	Manometer	Manometer	Manometer
Vacuum indicated on	Display	Display	Display
Total process control via display	●	●	●
Option to set the evacuation time	●	●	●
Protocol print-out with printer	–	●	●
USB connection for software- and database updates	●	●	–
Printer	–	●	●
Scope of delivery			
Service hoses (SAE standard), 3 m	●	●	●
Service hoses (SAE standard), 5 m	–	–	–
Valve adapter for WAECO refrigerant bottles	●	●	●
Operating instructions	●	●	●
Adapter for 500 ml fresh oil and UV tracer dye bottle	–	●	●
Used oil container	4445900468	4440600033	4440600131
Hermetically closed used oil container	–	–	●
Heated refrigerant tank / fluid pump (F)	optional / –	● / –	● / –
Dust cover	–	●	●
Goggles / safety gloves	●	●	●
Test bottles UV additive, 100 ml	–	●	●
Test bottle of double end capped PAG oil for R 1234yf, 100 ml	–	●	●
Accessories/consumables			
Adapter for 500 ml bottle of fresh oil and UV tracer dye	4440600026	4440600026	4440600026
Used oil container, 500 ml	–	–	–
Dust cover	4445900081	4445900081	4445900081
Universal flush container R 1234yf	–	8885200272	8885200272
Heat belt	8885200277	–	–
Spare roll of thermal paper for printer (sales pack 4 pcs.)	4445900088	4445900088	4445900088
R 134a service hose for HP side (SAE standard), 5 m	–	–	–
R 134a service hose for LP side (SAE standard), 5 m	–	–	–
R 1234yf service hose for HP side (SAE standard), 3 m	4440600175	4440600175	4440600175
R 1234yf service hose for LP side (SAE standard), 3 m	4440600176	4440600176	4440600176
Service coupler high pressure	8885400164	8885400164	with clearance ventilation: 8885400171
Service coupler low pressure	8885400163	8885400163	with clearance ventilation: 8885400170
Dimensions			
W x H x D (mm)	600 x 1040 x 600	560 x 1300 x 650	560 x 1300 x 650
Weight (kg)	90	100	110



FIT FOR THE FUTURE

ASC 7400 G A/C SERVICE UNIT FOR CO₂

CO₂ – THE REFRIGERANT OF THE FUTURE

Carbon dioxide (R 744) is over a thousand times less harmful on the atmosphere than the conventional R 134a refrigerant. It has an excellent cooling capacity, it is not flammable and readily available worldwide at low cost. Leading automotive manufacturers will soon bring the first car models with CO₂ air conditioners to the roads.

As a trendsetter and innovation partner for an eco-friendly and profitable A/C service we are pleased to present you the first WAECO ASC service unit for CO₂ air conditioners.

Charging and vacuum hoses

R 134a

Service hoses in various colours for all A/C technology applications

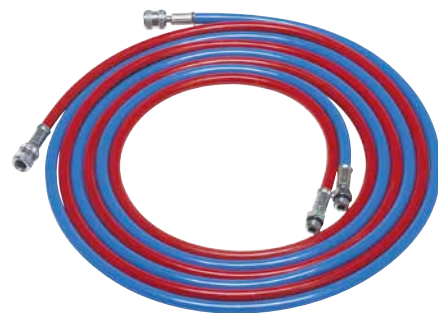
- Suitable for all standard refrigerants
- Highly flexible material allows use even in hard-to-access areas of automotive A/C systems
- Connection thread as per SAE standard
- Length: 3000 mm

Hose colour: red

Ref. No. 8885100065

Hose colour: blue

Ref. No. 8885100064

**Universal flush container**

R 134a

For easy fitting on A/C service units

- Integrated into the flushing circuit to speed up the process to the required level

Universal flush container

Ref. No. 8885200088

Replacement filter

Ref. No. 8880700246

**Flash-Memory-Card**

Update of service unit software and charging amount database.

For all ASC service units built until 2014.

- 6,000 vehicle data entries
- Also includes charging amount data for truck air conditioners
- Just slot in the flash memory card and play!

Software updates for the new ASC G-series by USB stick (p. 7).

ASC 1000 up to serial nr. 109999

Ref. No. 4441000041

ASC 2000 up to serial nr. 209999

Ref. No. 4441000042

ASC 1000 from serial nr. 110000

Ref. No. 4441000090

ASC 2000 from serial nr. 210000

Ref. No. 4441000091

ASC 3000 up to serial nr. 309999

Ref. No. 4441000043

ASC 3000 from serial nr. 310000

Ref. No. 4441000144

ASC 2500

Ref. No. 4441000120

ASC 5000 RPA / ASC 5500 RPA

Ref. No. 4441000139



Updated
edition

Bottle set for ASC series

Bottle set for ASC series

- 250 ml capacity, sales pack: 2 pieces

Bottle set

Ref. No. 4440600110



Spare rolls for printer

Special printer paper for ASC-series thermal printers

- Sales pack: 4 pieces

Spare rolls for printer

Ref. No. 4445900088



Service quick couplers

R 134a

For fast connection of A/C service units to automotive air conditioners

- Suitable for use on all WAECO A/C service units
- High-quality special couplers for long-term use

1 LP with M14 x 1,5" inside thread, standard ASC

Ref. No. 8885400026

1 HP with M14 x 1,5" inside thread, standard ASC

Ref. No. 8885400027

3 LP with 3/8" SAE outside thread

Ref. No. 8885400024

3 HP with 3/8" SAE outside thread

Ref. No. 8885400025

2 LP with 1/4" SAE outside thread

Ref. No. 8885400089

2 HP with 1/4" SAE outside thread

Ref. No. 8885400090



Used oil container

Patented used oil container for all Low Emission units

- Specially designed for the low-emission concept

Used oil container

Ref. No. 4440600131

Lid

Ref. No. 4440600133

O-ring

Ref. No. 4443300097

Metal strip used oil bottle

Ref. No. 4442500710



Service filter

High-performance filter for ASC series

- Special connector for easy installation

Drier for ASC models built before 2013

Ref. No. 4440400008

Drier for models built in 2013 or later including

G models, ASC 2500 G and ASC 5100 G

Ref. No. 4440400009

Drier for ASC 5000, ASC 5500RPA,

ASC 5000 G, ASC 5300 G

Ref. No. 4445900221



Vacuum pump oil

Vacuum pump oil

- Contains 1 litre; HT 32

Vacuum pump oil

Ref. No. 8887200018



Multi-gas leak detector, suitable for forming gas

Microprocessor controlled sensor electronics with multi-channel signal recognition

- Consistent sensitivity throughout the sensor's lifetime
- Can also be set for heavily contaminated environments (e.g. engine compartment)
- Complies with all international standards relevant for vehicle applications: SAE J 2913 for R 1234yf, SAE J 2791 for R 134a, EN14624:2005. Identifies all FC- and CFC-based refrigerants and blends as well as SF6

Multi-gas leak detector

Ref. No. 8885100124



Electronic leak detector TP-9364/F

Electronic leak detector for professional use in workshops

- Supplied in practical hard-top case
- Leak detection with infrared sensor, leak detection rate: 3 g per year
- Certified according to SAE J 2791
- Battery operation, 12 V on-board charging cable in scope of delivery
- Suitable for all HFC, HCFC and CFC refrigerants and for SNAP blends such as: R 134a, R 22, R 410a, R 404a, R 12, R 407c, R 409A, R 410B, R 406A, R 414A, R 502, R 500 and all SNAP refrigerants such as R 1234yf

Electronic leak detector

Ref. No. TP-9364/F



External refrigerant analysis tools with USB connection

External R 1234yf gas analysis tool (complies with the specifications of the task force of German OEMs)

- Reliable analysis with service coupler with clearance ventilation
- Easy handling and simple indication of the refrigerant purity

External R 1234yf gas analysis tool SAE (complies with SAE J 2912)

- Including printer
- Indicates the specific gases on the display, e.g. R 1234yf, R 134a, R 22, HC and air

External refrigerant analysis tool

Ref. No. 8885100106

External refrigerant analysis tool

Ref. No. 8885100107



Service coupler with clearance ventilation

- Quality coupler, complies with SAE J 639, with 1 g clearance ventilation
- e.g. for ASC 5500RPA

Service coupler R 1234yf, LP

Ref. No. 8885400170

Service coupler R 1234yf, HP

Ref. No. 8885400171



Service coupler

- Quality coupler, complies with SAE J 639
- Suitable for leak checks

Service coupler R 1234yf, LP

Ref. No. 8885400163

Service coupler R 1234yf, HP

Ref. No. 8885400164



Extension kit for nitrogen pressure gauge and leak detector for R 1234yf

R 1234yf

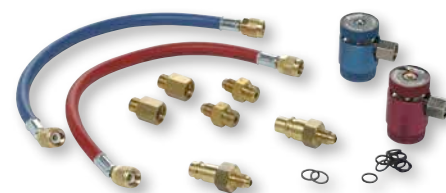
Extension kit for nitrogen pressure gauge and leak detector (8885400092) for use on R 1234yf air conditioners

Scope of delivery:

High side service coupler, low side service coupler, adapter, HP adapter, LP adapter, blue hose, red hose, O-ring

Nitrogen extension kit

Ref. No. 8885400165



Service filter

R 1234yf

High-performance filter for ASC 5000 series

- Specially designed for simple maintenance

Service filter ASC 5000RPA/5500RPA

Ref. No. 4445900221

Service filter ASC 5000 G, ASC 5100 G, ASC 5300 G

Ref. No. 4440400009



Cold light UV leak detection lamp

R 1234yf

Blue light UV leak detection lamp

- Cordless design
- Rechargeable NiMh battery
- Extremely high light output
- Up to 6 hours of operation between charges
- Safe and secure cold light technology for use with R 1234yf

UV leak detection lamp

Ref. No. TP-8690/F



4-way manifold

R 1234yf

4-way manifold for R 1234yf

- Complete with hoses and quality couplers
- Ideal for mobile R 1234yf charging
- Suitable for R 1234yf recovery

4-way manifold

Ref. No. 8885100098



Oil injector

Injector for manual injection of oils and/or UV additives

- Easy-to-use, sturdy design, ideal for workshop use
- With ml and oz scales for oil and an extra scale for additive

Scope of delivery: oil injector, coupler and hoses

Oil injector

Ref. No. 8885300132



Service quick coupler HP

R 1234yf

For hard-to-access service ports

- Suitable for Ford

Service quick coupler HP

Ref. No. 8885400340



Service quick coupler LP

R 1234yf

For hard-to-access service ports

Service quick coupler LP

Ref. No. 8885400345



TRACER® bottle

R 1234yf

For refrigeration and air conditioning systems (based on SPA2)

- Refill bottle for all recycling units with integrated UV additive management
- Individual quantities can be used as and when required

Refill bottle 236 ml, for approx. 25 car applications

Ref. No. TP-3825-0008



TP-3825-0008

Hand pump for adding leak detection additives

R 1234yf

For adding TRACER® leak detection additives (based on SPA2) to the suction side of charged R 1234yf air conditioners

- Accurate dosing via spindle adjustment
- Integrated non-return valve protects against over-pressure

Scope of delivery: Low-pressure service hose with quick coupler for R 1234yf A/C systems, 2 cartridges of additive, vent adapter, hand spindle, label with instructions

Hand pump
Spare spindle
3 cartridges, 14.80 ml each

Ref. No. TP-9828

Ref. No. 9103500683

Ref. No. TP-9825-0301



NOTE!

Special oils for use in R 1234yf A/C systems please see page 46.

RECOVERY OF CONTAMINATED GASES FROM R 1234YF A/C SYSTEMS

What do you do if the display of the A/C service unit reads "Bad refrigerant!" after having done the refrigerant analysis? This display message means that the refrigerant contained in the system is not OK, i.e. contaminated with other gases.

In such a case you must not simply recover the refrigerant, but use the disposal port of the A/C service unit to drain the refrigerant into a container specially designed for the purpose.

A safe method to recover contaminated refrigerant is to let it condense into a recycling bottle. This method has two benefits. First, there's no need for a suction pump. Second, cooling down the gas significantly reduces the reactivity of harmful substances.

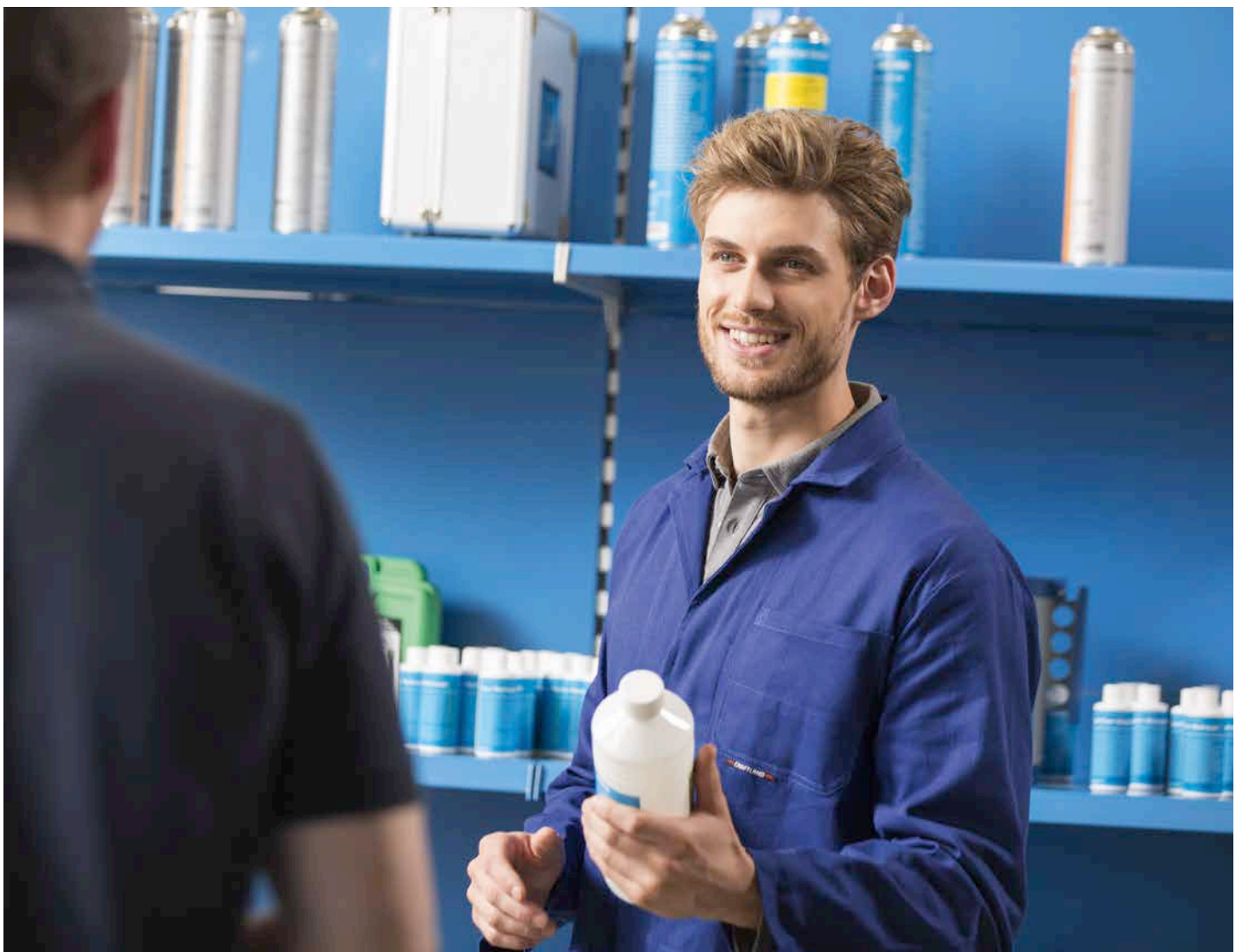
Recovery equipment for contaminated refrigerant

R 1234yf

Scope of delivery: seal, adapter for recycling bottle, filling hose LP, service coupler LP side, bottle fixture, insulating container

Recovery equipment

Ref. No. 8885200271





STRATEGIC PARTNERSHIP

IN ORIGINAL COMPRESSOR OILS

IDEMITSU & DOMETIC WAECO

Daphne Hermetic Oil double-end-capped PAG Lubricants are approved by leading car compressor manufacturers such as Denso, Hanon, Mahle, Sanden, Valeo and used by automotive manufacturers worldwide for initial equipment fill and for servicing.

IDEMITSU and Dometic are sharing one goal. Both companies want to fill, store and charge high quality original oils into automotive air conditioning systems moisture-free. Together they now complete the process chain. Excellent conditions to guarantee expert service on vehicle A/C systems.

Original IDEMITSU oils in patented WAECO containers:

- WAECO Daphne Hermetic Oil 1234yf
- WAECO Daphne Hermetic Oil PS-F
- WAECO Daphne Hermetic Oil PR



PROFESSIONAL TIPS ON OILS

MAKE SURE YOU USE THE RIGHT TYPE

Which oil for which A/C compressor? This question is frequently asked in view of the wide variety of compressor oils offered in the market. Here is a simple rule from our A/C professionals: always make sure you use the right type! If there is PAG oil in the system, recharge with PAG oil, if it's PAO oil, fill up with PAO oil. Also, it is recommendable to use the special oils of the respective compressor manufacturer, because they are perfectly coordinated with the system.

Using HFO-1234yf as successor of R134a in automotive a/c systems brings a lot of challenges for the refrigeration oil in the compressor. The chosen lubricant must keep performance during duration of use because higher reactivity of HFO1234yf compared with R134a. WAECO Daphne Hermetic Oils based on IDEMITSU double-endcapped polyalkylene glycols (PAG) can provide the protection the cooling system needs while ensuring that HFO1234yf refrigerant is operating properly.

WAECO Daphne Hermetic Oil 1234yf is characterised by a good miscibility with HFO-1234yf and provide excellent chemical, thermal, and hydrolytic stability. High Viscosity Index (VI) provides unsurpassed lubricity over a wide temperature range. The synthetic formula guarantees superior wear protection, and meets OE extended service interval requirements.

Due to their comparatively polar structure, PAGs absorb water rapidly. WAECO Daphne Hermetic Oils based on IDEMITSU Daphne Hermetic double-end-capped polyalkylene glycols (PAG) are less hygroscopic than ordinary PAG. Nevertheless the corresponding care must be also taken when handling these products protecting against moisture impact, which may lead to acid or ice formation in the A/C system. Storing the ultra-dried WAECO Daphne Hermetic Oils with the WAECO humidity free storage and feeding system makes this all different: the oils are stored moisture-free in aluminium laminated bags contained in a protective metal cylinder.



To find out which type of oil is flowing through the cooling circuit, refer to the vehicle documents or the service sticker of the A/C system. When in doubt better always check and make a note of the viscosity!



DOUBLE END CAPPED

IDEMITSU is the world's leading manufacturer of polyalkylene glycol (PAG) oil, the primary lubricant used for automotive air conditioners. The Daphne Hermetic PAG offers superior performance, longevity and system compatibility. The chemical structure of IDEMITSU's PAG series has proved it to be a superior formulation when compared to ordinary PAG. Ordinary, open-ended PAG molecules are quite chemically active. Typical PAG products are formulated by capping one end of the main carbon chain. The lubricants in the Daphne Hermetic PAG series, however, are formulated with both ends capped, making chemically inactive and very stable. Although PAGs are hygroscopic, Daphne Hermetic PAG oils are very tolerant of moisture even at high temperatures and will not react to form harmful acids.

COMPRESSOR OIL WITH UV ADDITIVE – IT'S ALL ABOUT THE RIGHT BLEND!

When adding UV leak detection dyes please note that the compressor oil and the UV additive must be perfectly coordinated to avoid dangerous mixtures. This is especially important if you are working on hybrid vehicles. Adding incompatible leak detection dyes can lead to a scenario where the compressor oil gets electrically conductive and life-threatening voltages build up in the area around the A/C compressor.

Protect your service staff and make sure you have the right blend. We can advise you on the right product to use.

WAECO DAPHNE HERMETIC PAG OIL

WAECO Daphne Hermetic PAG Oils are synthetic refrigeration oils for car air conditioning systems with fluorinated refrigerants and are suitable for both HFO-1234yf and R134a.

WAECO Daphne Hermetic Oils show excellent wear protection in all common compressor types. Effective anti-wear additives combined with the special IDEMITSU Daphne Hermetic double-end-capped PAG base oil secure outstanding lubrication properties. The high chemical and thermo-chemical stability guarantees a stable long-term operation of the A/C system.

The high separation temperature of IDEMITSU PAG lubricants ensures that the oil and refrigerant will remain a mixture over a wide range of extreme temperatures. Daphne Hermetic Oil double-end-capped PAG Lubricants are **approved by** leading car compressor manufacturers such as **Denso, Hanon, Mahle, Sanden, Valeo** and used by automotive manufacturers worldwide for initial equipment fill and for servicing. More detailed information at airconservice.eu.

R 134a – Original oil

Description	Oil type	Viscosity	Contains	Ref. No.
WAECO DHO PS-F	PAG	ISO 46	250 ml can	8887200058
WAECO DHO PS-F	PAG	ISO 46	500 ml profi oil system	8887200059
WAECO DHO PR	PAG	ISO 100	250 ml can	8887200060
WAECO DHO PR	PAG	ISO 100	500 ml profi oil system	8887200061
Denso ND11	Ester	ISO 84	100 ml profi oil system	8887200035
Denso ND8	PAG	ISO 46	500 ml profi oil system	8887200021



double end capped

R 134a – Aftermarket oil

Description	Oil type	Viscosity	Contains	Ref. No.
PAG 46	PAG	ISO 46, low viscosity	250 ml can	8887200001
PAG 46	PAG	ISO 46, low viscosity	500 ml profi oil system	8887200013
PAG 100	PAG	ISO 100, high viscosity	250 ml can	8887200002
PAG 100	PAG	ISO 100, high viscosity	500 ml profi oil system	8872000014
PAG 150	PAG	ISO 150, ultrahigh viscosity	250 ml can	8872000008
PAG 150	PAG	ISO 150, ultrahigh viscosity	500 ml profi oil system	8887200019
Universal PAO	PAO	ISO 68	500 ml profi oil system	8887200017
POE SE55	POE	ISO 55	500 ml profi oil system	8887200028

R 1234yf – Original oil

Description	Oil type	Viscosity	Contains	Ref. No.
WAECO DHO 1234yf	PAG	ISO 46	250 ml can	8887200062
WAECO DHO 1234yf	PAG	ISO 46	500 ml profi oil system	8887200063
VC 200yf	PAG	ISO 100	500 ml profi oil system	8887200046
Sanden SPA2	PAG	ISO 46	500 ml profi oil system	8887200039
Sanden SPA2	PAG	ISO 46	250 ml can	8887200048
Denso ND12	PAG	ISO 46	100 ml profi oil system	8887200031
Denso ND11	Ester	ISO 84	100 ml profi oil system	8887200035



double end capped

R 1234yf – Aftermarket oil

Description	Oil type	Viscosity	Contains	Ref. No.
PAG 46yf	PAG	ISO 46, low viscosity	250 ml can	8887200042
PAG 46yf	PAG	ISO 46, low viscosity	500 ml profi oil system	8887200041

Universal PAO compressor oil

R 134a

Synthetic multi-grade A/C compressor oil for universal use on all car and truck air conditioners

- Viscosity ISO 68, 1000 ml

Universal PAO oil

Ref. No. 8887200009

**Ester oil Triton SE 55**

R 134a

Special oil for bus air conditioners, 1000 ml

- Polyolester lubricant, for use on bus air conditioners
- Original Fuchs oil
- Not for hybrids

Ester oil Triton SE 55

Ref. No. 8887200029

**Ester compressor oil SEZ 80**

R 134a

Ester compressor oil SEZ 80

- For R 134a and used in WAECO Frigo freezing with R 404, 1000 ml

Ester compressor oil SEZ 80

Ref. No. 8887200006

**Vacuum pump oil**

Vacuum pump oil

- 1000 ml, HT 32

Vacuum pump oil

Ref. No. 8887200018

**Starter kit hybrid oil**

Starter kit hybrid oil, content 120 ml

Scope of delivery: injector assembly, adapter, solid-brass R 134a hybrid coupler with check valve and purge fitting, 120 ml cartridge of POE hybrid oil

Starter kit hybrid oil

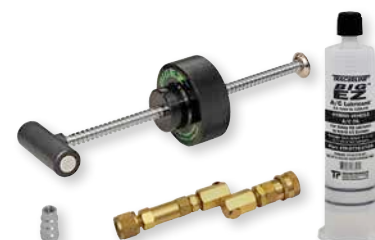
Ref. No. TP-9772

Spare cartridge, 120 ml

Ref. No. TP-9775-0104

Adapter for using with R 1234yf

Ref. No. TP-9831CS



R 134A AND R 1234YF REFRIGERANT IN THE PROVEN REFILLABLE WAECO BOTTLE

Quality by experience: the type-tested refillable WAECO bottle for R 134a refrigerant has proven itself in daily workshop use for decades. Naturally, we also offer a version for the new refrigerant

R 1234yf – clearly recognisable by the signal red colour of the stand-up collar. No confusion possible!

Type-tested refillable steel bottle

R 134a

Reusable system with refill safety device. Capacity: 12 kg of R 134a refrigerant

- Sturdy design, good stability, stand-up collar and practical extraction valve, bottle without riser tube for extraction in gas or liquid form
- Suitable for all charging units in mobile or stationary use

Fill of WAECO refillable bottle

Ref. No. 8887100007

Purchase of bottle*

Ref. No. 8887100008

Bottle adapter

Ref. No. 8885400129

* Purchase price is refunded if bottle is returned within 2 years



8885400129

Type-tested refillable steel bottle

R 1234yf

Reusable system with refill safety device. Capacity: 5 kg of R 1234yf refrigerant

- Sturdy design, good stability, stand-up collar and practical extraction valve, bottle without riser tube for extraction in gas or liquid form
- Suitable for all charging units in mobile or stationary use

5 kg fill

Ref. No. 8887100019

Returnable bottle

Ref. No. 8887100018

Bottle adapter, for large bottle valves

Ref. No. 4440600148



4440600148



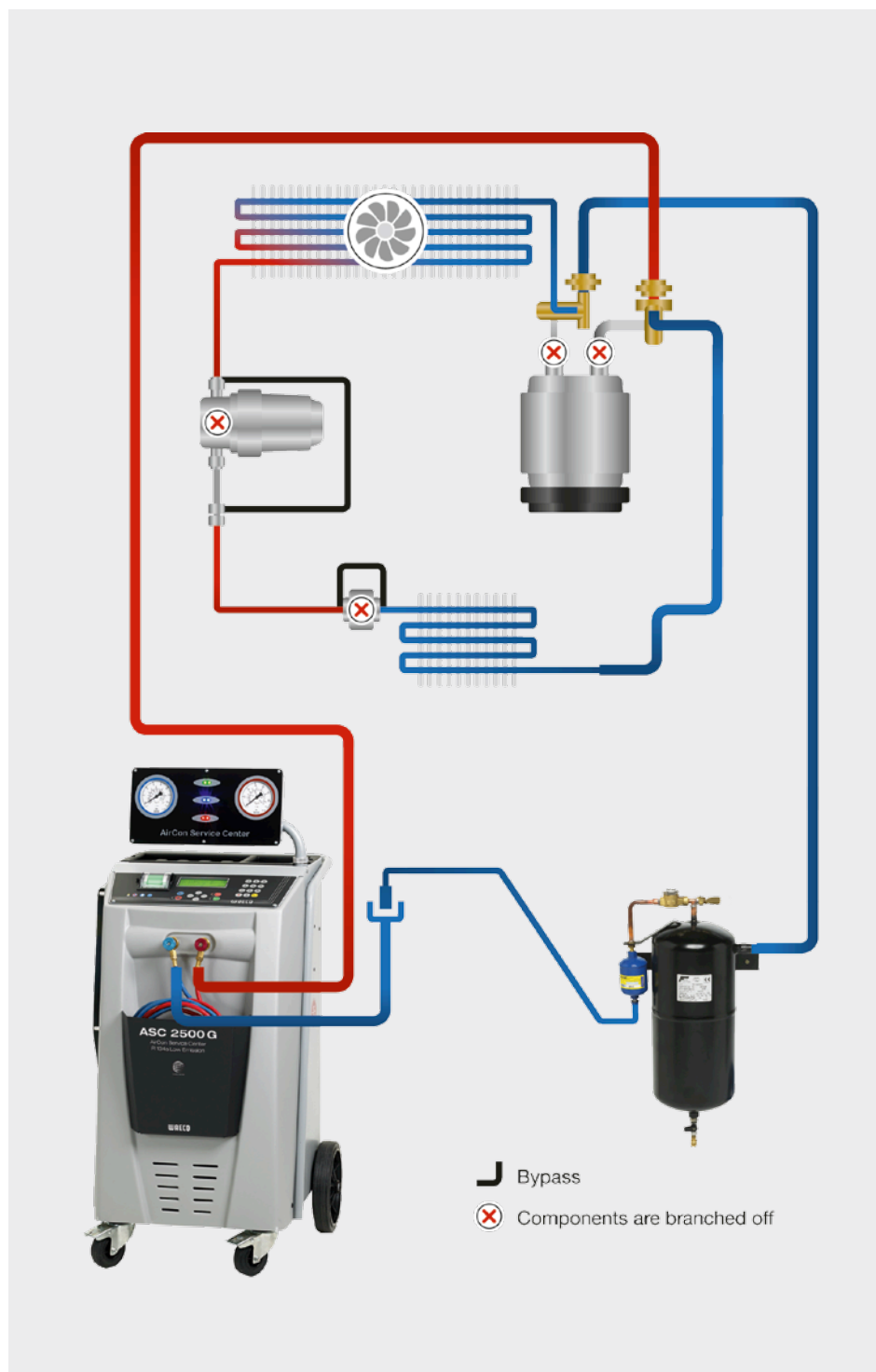
CLEAN WORKING – IT PAYS TO FLUSH!

Professional service on automotive A/C systems naturally also includes flushing the system to clear away aggressive substances and contaminants from the refrigerant circuit. Flushing protects all parts of the air conditioner from damage, especially the compressor being its core component.

You will never get a hundred per cent clean refrigerant circuit, this because of the parallel flow evaporator technology commonly used these days. **We strictly recommend you to add a chip filter** to the

suction line when you flush the system. This will **protect the compressor** and is especially advisable when you've replaced the compressor, as it will keep the remaining particles away from the newly fitted unit.

Important note: The filter (Ref. No. 8880700246) should be replaced after every flushing process (for each vehicle)!



Note

This flushing process was developed directly with major automotive manufacturers. Experts say it is a sensible and necessary measure to take.

The benefits of air conditioner flushing:

- Prevents costly and annoying repeat repairs
- Reduces subsequent costs for the workshop
- Prevents problems with guarantee claims
- Enhances the workshop's A/C service package
- Recommendation for the workshop

Flushing air conditioners

Speeds up the flushing process to the required level when integrated into the flushing circuit

Scope of delivery: Pressurised container with 2-way extraction valve, universal mounting bracket for pressurised container, purifier filter, sight glass, hose to connect the container to the air conditioner and the A/C service unit connected

Universal flush container	Ref. No. 8885200088
Spare filter	Ref. No. 8880700246
Universal flush container, R 1234yf	Ref. No. 8885200272
Adapter R 1234yf, 3/8" SAE	Ref. No. 8885400343



A/C flush adapter kit, 17 items

For bypassing expansion valves and dryers

- For direct connection of A/C service hoses to the compressor's suction and pressure hoses
- Made of high-quality brass-aluminium materials to withstand the rigours of workshop use
- Supplied in sturdy workshop case

Scope of delivery: Universal flush adapter kit for many Audi and VW models as well as for other makes

A/C flush adapter kit	Ref. No. 8885300089
Adapter 3/8" on high-pressure side	Ref. No. 8885400104
Adapter R 1234yf, 3/8" SAE	Ref. No. 8885400343



A/C flush adapter kit, 18 items

Adapter set for bypassing air conditioning components

- Set includes a variety of adapters, e.g. for expansion valves and compressors
- Air conditioner is flushed with refrigerants, no need to dispose of cleaning agents
- Ideal for removing oil from the system
- Flexible use with various adapter options
- Refrigerant is recycled by the A/C service unit and can then be reused
- Causes no damage to gaskets and components

SK43, universal A/C flush adapter set	Ref. No. 8885300125
Repair set of 6 gaskets	Ref. No. 8885300090



A/C flush adapter kit III, 5 items

For targeted flushing of condensers and evaporators

- For bypassing expansion valves and dryers
- Special clamps with brass connectors
- Connectors for 3/8" service hoses

Spares: Repair set of gaskets, Ref. No. 8881500878

SK46, A/C flush connector	Ref. No. 8885300127
Repair set of 4 gaskets	Ref. No. 8881500878



A/C flush adapter kit IV, 65 items

Adapter set for bypassing air conditioning components

- Set includes a variety of adapters, e.g. for expansion valves and compressors
- Air conditioner is flushed with refrigerants, no need to dispose cleaning agents
- Ideal for removing oil from the system
- Flexible use with various hose connection options
- Refrigerant is recycled by the A/C service unit and can then be reused
- Causes no damage to gaskets and components

A/C flush adapter kit IV

Ref. No. 8885300080

**Flush adapter set V, 143 items**

For use with O-ring and taper connections

- Universal flush adapter set
- The variable connectors can be adapted, which allows the use on flange connections
- Multiple connections possible
- Supplied in sturdy plastic case
- Suitable for workshop use

Scope of delivery: Sturdy service case, brief application instructions with illustrations, 12 gaskets, fixing material, various adapters

A/C flush adapter kit V

Ref. No. 8885300104

**Set of chip filters, 60 items**

Filter catches contaminants coming from the system to protect the compressor

- Keeps a newly installed compressor free from chips
- Easy to fit; no need to cut pipes or insert fittings
- Choice of sizes to suit different A/C systems

Scope of delivery: 60 filters in 20 different sizes, SK 47 including set of tools

SK47, set of chip filters with tool

Ref. No. 8885300128

Filter for Audi A3, VW Golf V and VW Touran

Ref. No. 8887300038

Chip filter 22 mm

Ref. No. 8887300019

Chip filter 23 mm

Ref. No. 8887300020



Recycle Guard

R 134a

Separates and removes sealants from A/C systems

- During refrigerant recovery the Recycle Guard is connected between the A/C service unit and the air conditioning system
- The unit reliably separates sealants before they can enter and cause damage to the service unit
- The integrated filter insert can be used several times

Suitable for A/C service units of all makes



Universal mounting bracket, fits all A/C service units

Recycle Guard
Universal mounting bracket
Spare filter

Ref. No. 8885200060
Ref. No. 8880600008
Ref. No. 8885200061



Watch the Recycle Guard instructions video at www.airconservice.eu/recycleguard



Sealant contamination in the A/C service unit without the use of the Recycle Guard

Recycle Guard

R 1234yf

Separates and removes sealants from A/C systems

- During refrigerant recovery the Recycle Guard is connected between the A/C service unit and the air conditioning system
- The unit reliably separates sealants before they can enter and cause damage to the service unit
- The integrated filter insert can be used several times

NEW



Recycle Guard
Universal mounting bracket
Spare filter

Ref. No. 8885200275
Ref. No. 8880600008
Ref. No. 8885200061

Oil Checker Easy

R 134a

For a fast and easy check of the oil and refrigerant in an A/C system

- Can be used to check the state of the oil and refrigerant while the A/C system is in operation
- Easy and fast diagnosis
- Detects damage early on and avoids costly repairs

NEW



Scope of delivery: Oil checker, blue service hoses, red service hoses, blue service coupler, red service coupler

Oil checker Easy

Ref. No. 8885100156



Dark red/black
Overheated oil: check the condition of the compressor, oil flush required



Pale yellow/white
Oil OK



Orange/yellow
Oil starts to overheat: check the condition of the compressor, oil flush required



Hybrid flush kit

Special flush container for ASC-series service units

- Approved according to SAE J 2843/2788/2843H
- Suitable for use with the complete ASC series (except ASC 2000RPA)
- Simple, fully automatic cleaning and flushing of the service unit for application on hybrid vehicles
- For service on all hybrid vehicles

Scope of delivery: Flush container, special software, operating instructions

Hybrid flush kit for ASC 1000	Ref. No. 8885200260
Hybrid flush kit for ASC 2000	Ref. No. 8885200261
Hybrid flush kit for ASC 2500	Ref. No. 8885200262
Hybrid flush kit for ASC 1000 G / ASC 2000 G / ASC 2500 G / ASC 3000 G / ASC 3500 G	Ref. No. 8885200270
Hybrid flush kit for ASC 5000 / ASC 5000 G / ASC 5300 G / ASC 5000RPA / ASC 5500RPA	Ref. No. 8885200259
USB and flush kit for ASC 3000	Ref. No. 8885200263



Watch the Hybrid flush kit instructions video at
www.airconservice.eu/hybridkit

WAECO AIRCON SERVICE – EVACUATION OF AUTOMOTIVE AIR CONDITIONERS

Evacuation of automotive A/C systems has to be done with vacuum pumps designed for the purpose. Too fast an evacuation by means of over-dimensioned vacuum pumps will lead to icing of residual moisture in the air conditioning system and consequently to system malfunctions.

Today's automotive A/C systems only have a maximum volume of 3 litres of air. Therefore, only 3 litres of air per minute will flow through the service coupler during the evacuation process. The vacuum pumps shown below have been exactly designed to match the specific capacity requirements of automotive A/C systems.

4-way manifold

Universal manifold for mobile use

- High quality connection for 3/8" SAE
- Can be used for: **R 134a, R 404a, R 407c, R 22**
- Manometer class 1
- Not damped
- Can be adjusted by the operator
- Includes safety sight glass and suspension
- Supplied without hoses

4-way manifold

Ref. No. 8885100115



Picture similar to product

Vacuum pump, 42 l/min

Vacuum pump for use on passenger car and utility vehicle air conditioners

Specifications

Rated flow	42 l/min	Power input	125 W
End vacuum	0.5 mbar	Supply voltage	230 V/50 Hz
Speed	2.850 ¹ /min	Dimensions	95 x 184 x 279 mm
Oil capacity	227 ml	Weight	4.5 kg

Vacuum pump

Ref. No. 8885200257



Vacuum pump, 132 l/min

High-performance vacuum pump for use on automotive air conditioners with a refrigerant charging amount of more than 2 kg.

Specifications

Rated flow	132 l/min	Power input	330 W
End vacuum	0.02 mbar	Supply voltage	230 V/50 Hz
Speed	2.800 ¹ /min	Dimensions	350 x 134 x 265 mm
Oil capacity	400 ml	Weight	11.2 kg

Vacuum pump

Ref. No. 8885200256



Refrigerant recovery unit

R 134a

Automatic recovery of refrigerants

(R 12, R 22, R 134a, R 404a, R 413a (Isceon 49), R 410a)

- Recovery of refrigerant from A/C systems, transfer from one refrigerant bottle to another, disposal in a special R-bottle
- Automatic self-emptying – several recovery processes can be performed in quick sticks

Specifications

Recovery rate	gases: 16 kg/h; liquids: 22 kg/h
Supply voltage	230 volts/50 Hz
Power input	350 watts
Audits	TÜV/GS
Weight	12.6 kg

Scope of delivery: Recovery unit, red and blue service hoses with ball valves

Refrigerant recovery unit

Ref. No. 8885200276



2.0 kg charging cylinder for R 134a, R 404a and R 407c

R 134a

For stationary use in A/C workshops

- Sturdy construction
- Refrigerant can be extracted in liquid or gas form

Scope of delivery: Charging cylinder, safety valve, manometer

Charging cylinder

Ref. No. 8885200269



Refrigerant scales

Heavy-duty weighing platform with separate display unit in sturdy plastic case

- Large LCD display with setting option for kg – lb – oz
- Solenoid valve control for accurate charging
- 100 kg weighing platform
- Recovery and charging possible via solenoid valve control system
- Charging process can be repeated
- 220-volt solenoid valve control
- Mains-independent 9-volt LCD control system

Refrigerant scales

Ref. No. 8885100099



LEAK DETECTION – SIX METHODS TO TRACE LEAKS

Leak detection is a hot topic in every A/C workshop – and not only for service on conventional R 134a A/C systems, but also for systems charged with alternative refrigerants, such as R 1234yf or CO₂. There is an overview of the six most commonly used methods to trace leaks, plus some recommendations from our experts.

For further information about UV leak detection, please refer to page 58.

1 UV leak detection

A special, fluorescent additive is injected into the refrigerant circuit – either via the A/C service unit or manually. Some new drier models are already fitted in the factory with such additives. When the A/C components are illuminated with a UV lamp and viewed through yellow UV protection goggles, the leak appears brightly lit up. Visibility is ensured even where oil-covered engines are concerned and even at some distance. Unlike the forming gas method, UV leak detection is also suitable for tracing ultra-fine leaks. Where vibration leaks are concerned it is the only method available.

2 Nitrogen

This method involves the production of positive pressure through nitrogen or negative pressure through vacuum by the A/C service unit. Leak detection through differential pressure is mainly suitable for the initial testing of strongly leaking or even empty systems. It only indicates that the system is leaking – not where the leak is. Testing is only possible with A/C service units that automatically stop when it is impossible to generate vacuum (e.g. all WAECO ASC service units).

If the process continues without fault warning, you can be certain that the system has no leak and may be charged with refrigerant. The requirements of the Chemicals Climate Protection Ordinance are met. The WAECO ASC 2000RPA allows application of both methods (positive pressure through nitrogen or negative pressure through vacuum).

3 Tracer or forming gas

Forming gas consists of 95 % nitrogen and 5 % hydrogen. The operating principle is similar to that of electronic leak detection. The difference is that the operator has to fill the system with test gas when the refrigerant has been removed. The drawback of this method is the length of time required (after 15 minutes the hydrogen has almost completely diffused and must be replaced). Another disadvantage is the fact that testing takes place when the system is not operating. "Vibration leaks" which occur while the engine is running can therefore not be detected. (The system needs refrigerant to operate, but it cannot be recharged yet because of the leak!) Moreover, leak detection with forming gas requires clean and constant ambient conditions (for example no draughts in the workshop).

4 Electronic leak detection

Finding very small leaks is no problem for electronic leak detection systems. In some sections of the A/C system it is difficult though to apply the probe correctly, or at least very time-consuming.

5 Vacuum check

Fully automatic with A/C service units from Dometic WAECO

6 Simple bubble test

Looking for a leak with lather, the so-called "bubble test", belongs to the oldest methods of leak detection. It has become almost insignificant, however, as it is impossible to find very small leaks using this method.

Also
suitable for
R 1234yf and
R 744



LEAKAGE CONTROL – AN ABSOLUTE MUST

The utopia of a maintenance-free A/C system has been abandoned long ago. These days, A/C experts accept the fact that refrigerant losses occur with virtually every system. These losses do not always result from torn ducting or damages through accidents. Even totally intact systems lose some refrigerant – through the ducting and piping system, screw connections, sealing rings, etc. Such losses particularly affect modern systems containing far less refrigerant than former system generations.

The law forbids recharging defective A/C systems – after all, R 134a is regarded as an environmental hazard and climate killer. Regular leakage checks are in the interest of the vehicle owner to prevent compressor damage.



Decreasing refrigerant charging amounts in automotive A/C systems call for more sensitive leak detection equipment. This is where TRACER®, a quality brand, provides a convincing solution with its highly fluorescent additives and advanced LED blue light UV technology.

Left: highly fluorescent TRACER® sticks in the light of the LED blue light UV lamp – fast and reliable leak detection. With TRACER® products, the UV additive and lamp are perfectly coordinated.

Right: low fluorescence no-name additive – potential leaks can only be detected with difficulty

UV LEAK DETECTION – ALWAYS WITH THE MATCHING UV ADDITIVE!

A PAG and PAO mixture do not form a consistent oil film. As PAG is heavier, it settles below the PAOs. A phase separation is clearly visible in static condition. During the start-up operation of the A/C system inconsistencies in the mixture can occur and cause damage to the compressor.

Given the clear phase separation of the two oils, there can be no such thing as a universal UV additive. The UV-additive is contained in a carrier oil. If the different oils do not mix, the UV additive will not mix 100 % with the two oils either. The consequence is that it “sags through”. If the oil and the UV additive are a perfect match, the UV additive will form a stable and uniform blend with the compressor oil.

Conclusion: Always mix the right oil with the right UV additive. There are no universal solutions.



When buying a UV additive, make sure you get a quality one! Poor quality additives may cause wear on the seals in the air conditioner as well as in the A/C service unit. Moreover, some UV additives contain solvents which may impair the refrigerant oil's lubricating ability and in the worst case, damage the compressor. Additives containing naphthalene are also dangerous because they let the seals swell. **Currently, there is only one UV additive available that was specially formulated for use with refrigerant oils and is therefore absolutely solvent-free: TRACERLINE®.** When applied properly, this additive is absolutely safe for use in vehicle air conditioners or A/C service equipment. Many automotive manufactures stipulate that leak detection additives of a certain quality must be used.

UV leak detection kit

R 134a

For leak detection on automotive air conditioners with R 134a in combination with PAG oil

- Sturdy case in PAG oil resistant plastic
- Hand pump and cartridges can be stored mounted ready for use

Scope of delivery: hand pump incl. 2 cartridges of leak dye, low-side service hose and valve adapter, UV leak detection lamp with cigarette lighter plug, vehicle battery adapter, UV glasses, GLO-AWAY (225 ml), TRACER® under-hood labels (50 pcs.)

UV leak detection kit

Ref. No. 8885300072

Approved
by automotive
manufacturers

**Blue light UV leak detection kit**

R 134a

Specially designed for all A/C service units with integrated tracer dye injection device

- Powerful UV lamp (50 watts, 12 volts)
- UV intensity: 5000 $\mu\text{W}/\text{cm}^2$

Scope of delivery: 50-watt UV leak detection lamp with battery clamps, 236 ml refill bottle for all recycling units with integrated UV additive management. Contents sufficient for approx. 24 car applications. UV glasses, TRACER® underhood labels

UV leak detection kit

Ref. No. TP-1151

**LED leak detection kit**

R 134a

Specially designed for all A/C service units with integrated tracer dye injection device

- Powerful UV LED lamp (50 watts, 12 volts)
- UV intensity: 5000 $\mu\text{W}/\text{cm}^2$

Scope of delivery: UV LED leak detection lamp with 3 AA batteries, 236 ml refill bottle for all recycling units with integrated UV additive management. Contents sufficient for approx. 24 car applications. UV glasses, TRACER® under-hood labels

LED leak detection kit

Ref. No. TP-8651

**Starter set for R 1234yf**

R 1234yf

- Powerful UV lamp (50 watts)
- UV intensity: 5000 $\mu\text{W}/\text{cm}^2$

Scope of delivery: UV LED leak detection lamp with 3 AA batteries, 14.8 ml cartridge, injection aid with hose and coupler for R 1234yf systems, UV glasses, TRACER® label

Starter set

Ref. No. TP-128155

Spare cartridge, sales pack: 3

Ref. No. TP-128157-0301



LED blue light UV leak detection lamp

LED blue light UV leak detection lamp

- 12 volts operating voltage, for direct connection to cigarette lighter plug
- Adapter for direct connection to vehicle battery
- Highlight output for high-performance leak detection
- No preheating required – ready for use straight away!

Scope of delivery: UV lamp, UV glasses, connection adapter, 5.5 m connection cable

SK18/2: Supplied in a sturdy plastic case

UV leak detection lamp
SK18/2, Set of leak detection lamps

Ref. No. TP-8690X
Ref. No. 8885300115



TP-8690X

LED blue light UV leak detection lamp

LED blue light UV leak detection lamp

- Cordless design
- Powered by rechargeable NiMh battery
- Extremely high light output
- Special LED technology, 10 times brighter than standard LED lights
- Extra large inspection range (up to 6 m)
- Up to 6 hours of operation between charges
- Compatible with all leak detection dyes

Scope of delivery: Battery powered UV lamp, UV glasses, charger

UV leak detection lamp

Ref. No. TP-8690/F



LED blue light UV leak detection lamp

OPTI-PRO™ PLUS

- Power comparable to high-intensity 135-watt lamps
- Works with all TRACERLINE® universal/ester and PAG A/C dyes
- Provides 4 hours of continuous inspection between charges

Scope of delivery: Smart charger with AC plug, fluorescence-enhancing glasses and lanyard

UV leak detection lamp

Ref. No. TP-8655/F



LED blue light UV leak detection flashlight

Ideal for initial inspection on automotive reception

- Compact, cordless design, super lightweight
- High light output
- Powered by 3 AA batteries, 100,000-hour LED bulb
- Easy to use

Scope of delivery: UV lamp, UV glasses

UV leak detection lamp

Ref. No. TP-8640CS



PROTECT YOUR A/C SERVICE UNIT – AND YOUR CUSTOMERS' A/C SYSTEMS!

UV leak detection additives are well proven worldwide, because they are fast and easy to use providing high leak detection accuracy at competitive costs. Caution is advised because poor quality products can cause wear on the seals in the air conditioner as well as in the A/C service unit. Moreover, leak detection additives can contain solvents that impair the refrigerant oil's lubricating ability. **Therefore, when buying a leak detection additive, make sure you get a quality one!**

For use with refrigerant oils (PAG, mineral oil, ester), there's currently only one UV additive available that contains no solvents whatsoever, features an excellent fluorescence and is based on high-quality refrigerant oils only. Its name: TRACER®. When properly applied, this additive is absolutely safe for use in all types of automotive air conditioners and A/C service units. Special TRACER® leak detection additives have already been approved for use with new refrigerants, such as CO₂ and R 1234yf. TRACER® products contain 10 times more dye than other UV additives, which makes them much more effective when it comes to tracing smaller leaks.



Approved
by automotive
manufacturers

TRACER® additives (right)
contain 10 times more dye than
other UV additives (left)

TRACER® UV additive (in patented container)

For ASC series and other manufacturers' service units

- TRACER® UV additive for approx. 71 applications (500 ml) when used in combination with ASC A/C service units
- Approved by major automotive manufacturers

Accessory: 4440600026 (adapter)

TRACER® UV additive, 500 ml, **R 134 a**
TRACER® UV additive, 500 ml, **R 1234yf**

Ref. No. TP-3820-500
Ref. No. TP-3825-500

Approved
by automotive
manufacturers



TRACER® bottles

R 134a

For refrigeration and air conditioning systems (R 134a/PAG oil)

- Refill bottle for all recycling units with integrated UV additive management
- Once the system is empty the additive (TP-3820-0301) is simply fed into the component to be replaced – e.g. the dryer
- Individual quantities can be used as and when required

Refill bottle 475 ml, for approx. 50 car applications
Refill bottle 236 ml, for approx. 25 car applications
Sales pack: 3 bottles, for 4 car applications

Ref. No. TP-3820-0016
Ref. No. TP-3820-0008
Ref. No. TP-3820-0301

Approved
by automotive
manufacturers



TP-3820-0016

TP-3820-0301

TRACER® UV additive

R 1234yf

UV additive for R 1234yf refrigerant

- TRACER® UV additive when used in combination with AirCon Service Center

3 cartridges, 14.89 ml each (**based on original SPA2 oil**)
237 ml bottle (**based on original SPA2 oil**)

Ref. No. TP-9825-0301
Ref. No. TP-3825-0008



Picture similar to product

TRACER® sticks

R 134a

For refrigerating and air conditioning systems, sales pack: 6 pcs.

- When recharging with refrigerant after a normal repair, the contents of the TRACER® stick is simply added to the refrigerant
- Each stick contains exactly the right quantity for the refrigerant volume of an automotive A/C system



in combination with PAG oil

Ref. No. TP-3860-0601

TRACER® cartridge for approx. 14 car applications

R 134a

For refrigerating and air conditioning systems, sales pack: 3 pcs

- For adding to the system when already charged using the TP-9848 hand pump
- In preparation for a repair when the customer cannot leave the car in the workshop straight away
- For use with R 134a refrigerant in combination with PAG oil
- For approx. 7 Vans/small trucks applications using refrigerant charging amount up to 2,2 kg



TRACER® cartridge

Ref. No. TP-9860-0301

TRACER® cartridge for approx. 34 car applications

R 134a

For refrigerating and air conditioning systems, sales pack: 3 pcs

- For adding to the system when already charged using the TP-9741 hand pump
- In preparation for a repair when the customer cannot leave the car in the workshop straight away
- For use with R 134a refrigerant in combination with PAG oil
- For approx. 17 Vans/small trucks applications using refrigerant charging amount up to 2,2 kg



TRACER® cartridge

Ref. No. TP-9760-0304

TRACER® Dyes

R 134a

For engine, gearbox and power steering oil, fuel, cooling water, sales pack: 6 pcs

- Possible applications: cooling water loss, oil leaks or smell of petrol
- Simply add to the liquid circuit concerned. The necessary quantity can be taken from the resealable bottles as and when required



for oils and fuels
for cooling water

Ref. No. TP-3400-0601
Ref. No. TP-3900-0601

TRACER® hybrid application

hybrid

UV additive injection kit for hybrid vehicles

- Insulation resistance of the compressor oil won't drop
- Light-proof storage of the POE special oils in aluminium laminated bags

Scope of delivery: 3 sticks, hose, coupler, valve, charging adapter



UV additive injection kit
Spare cartridge, sales pack: 3 pcs.
Adapter for using with R 1234yf

Ref. No. TP-3812
Ref. No. TP-3811-0301
Ref. No. TP-9831CS

TRACER® GLO-AWAY

Dye cleaner/remover

- For leak clean-up after repairs
- Removes traces of additive in the engine compartment/at the service ports
- Suitable for use with all TRACER® leak detection additives

225 ml spray bottle
450 ml refill bottle

Ref. No. TP-9000-0008

Ref. No. TP-9000-0016



Picture similar to product

Hand pump for adding leak detection additives

R 134a

For adding TRACER® leak detection additives to the suction side of charged R 134a air conditioners

- Accurate dosing via spindle adjustment
- Integrated non-return valve protects against over-pressure

Scope of delivery: Low-pressure service hose with quick coupler for R 134a A/C systems, 2 cartridges of additive, vent adapter, hand spindle, label with instructions

Hand pump
Spare spindle

Ref. No. TP-9848

Ref. No. 9103500683

**Hand pump for adding leak detection additives**

R 1234yf

For adding TRACER® leak detection additives to the suction side of charged R 1234yf air conditioners

- Accurate dosing via spindle adjustment
- Integrated non-return valve protects against over-pressure

Scope of delivery: Low-pressure service hose with quick coupler for R 1234yf A/C systems, 2 cartridges of additive, vent adapter, hand spindle, label with instructions

Hand pump
Spare spindle

Ref. No. TP-9828

Ref. No. 9103500683

**Hand pump for injection of leak detection additives**

R 134a

For adding TRACER® leak detection additives to the suction side of charged R 134a A/C systems

- Accurate dosing via spindle adjustment
- Integrated non-return valve protects against over-pressure
- **For cartridge Ref. No. TP-9760-0304**

Scope of delivery: Low-pressure service hose with quick coupler for R 134a A/C systems, 1 cartridge of additive, vent adapter, hand spindle, label with instructions

Hand pump

Ref. No. TP-9741

**Safety gloves / Standard full-view goggles / UV glasses**

Safety gloves for working with refrigerants and UV additives
Standard full-view goggles for working with refrigerants
UV glasses for leak detection

Safety gloves
Standard full-view goggles
UV glasses for leak detection

Ref. No. 8885400065

Ref. No. 8885400066

Ref. No. TP-9940



Nitrogen pressure gauge and leak detector

R 134a

For inspections on A/C evaporators and complete A/C systems in installed condition

- Manometer block with vent valve and safety valves, 36 bar opening pressure
- Nitrogen pressure reducer, adjustable from 0 to 35 bar
- Test manometer 0 to 40 bar, calibration: 1 bar, class 1.0

Scope of delivery: pressure reducer, service quick coupler, 1.8 m service hose for low side, 1/4" SAE x 1/2" ACME adapter, cylinder trolley with manometer block

Pressure gauge and leak detector
 Extension kit HP for R 134a
 Extension kit for R 1234yf (s. page 41)

Ref. No. 8885400092
 Ref. No. 8885400124
 Ref. No. 8885400165



Cylinder trolley

For safe transport and storage of 10-litre cylinders

- Handy and sturdy cylinder trolley
- With hose suspension
- Integrated storage box for accessories

Cylinder trolley

Ref. No. 8885400057



Nitrogen pressure reducer

R 134a

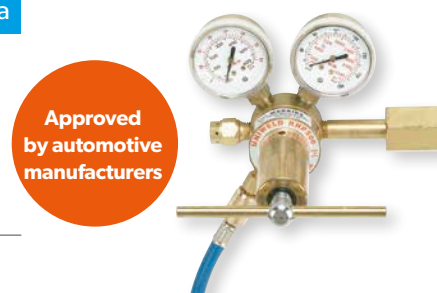
For controlled and safe admission of nitrogen to A/C systems (pressure test)

- Adjustment range from 0 to 35 bar, so also suitable for flushing
- High quality design

Scope of delivery: Pressure reducer, service quick coupler, 1.8 m service hose for low-pressure side, 1/4" SAE x 1/2" ACME adapter

Pressure reducer

Ref. No. 8885400058



Nitrogen pressure reducer

R 134a

For controlled and safe admission of nitrogen to A/C systems (pressure test)

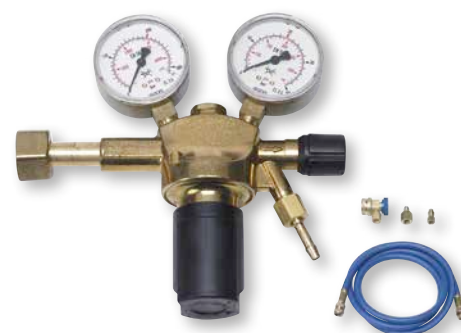
- Adjustment range from 0 to 20 bar, ideal for air conditioner inspections (§ 5 of the German Chemicals Climate Protection Ordinance)

Hose set for safe connection to vehicle A/C system

Scope of delivery hose set: service quick coupler, 1.8 m service hose for low-pressure side, 1/4" SAE x 1/2" ACME adapter

Nitrogen pressure reducer
 Forming gas pressure reducer
 Hose set for nitrogen pressure reducer

Ref. No. 8885400135
 Ref. No. 8885400172
 Ref. No. 8885400136



Hose set

Leak detection spray

Leak detection by formation of foam on leaky spots in the refrigerant circuit

- Suitable for fast detection of larger leaks (e.g. on threaded joints or press fits), easy to use

Leak detection spray, 500 ml

Ref. No. 8887300018



Electronic R 134a/R 1234yf leak detector

Senses refrigerant concentrations in the ambient air

- Responds to R 134a/R 1234yf refrigerant only, therefore no interference by other gases (plastic emissions) or air movement
- Measuring head on flexible neck to reach hard-to-access places
- Sensitivity: up to 5 g/year

R 134a/R 1234yf leak detector
Sensor
Filter, sales pack: 20 pcs.

Ref. No. TP-9360
Ref. No. 9103500684
Ref. No. 9103500685



Multi-gas leak detector, suitable for forming gas

Microprocessor controlled sensor electronics with multi-channel signal recognition

- Consistent sensitivity throughout the sensor's lifetime
- Can also be set for heavily contaminated environments (e.g. engine compartment)
- Complies with all international standards relevant for vehicle applications:
SAE J2913 for R 1234yf, SAE J2791 for R 134a, EN14624:2005.
Identifies all FC- and CFC-based refrigerants and blends as well as SF6.

Multi-gas leak detector

Ref. No. 8885100124



R 134a and R 1234yf reference leak

For checking the functioning and sensitivity of electronic leak detectors

- Suitable for all electronic refrigerant leak detectors sensitive to fluorinated hydrocarbons
- Approved for use with leak detectors that respond to both R 134a and R 1234yf

Reference leak

Ref. No. 8885100095



Marksman II Ultrasonic leak detection tool

Ultrasonic leak detector for pinpoint of refrigerant leaks of A/C or air leaks

- Convenient, easy-to-use, touch-control sensitivity pad and power switch
- 5-LED signal-intensity indicator and audible alarm easily pinpoint the exact problem source
- Internal Noise Control (INC) ensures tool is unaffected by ambient noise. Ideal for use in extremely noisy environments.
- Self-adjusting Automatic Gain Control (AGC) circuitry enhances sensitivity and simplifies operation
- Precision-engineered hollow air probe helps isolate leak sources in cramped areas
- Solid contact probe quickly pinpoints wear or damage to internal components – without disassembly!

Scope of delivery: Ultrasonic receiver, ultrasonic emitter, hollow air probe, contact probe, headphones and rugged carrying case, 2 batteries (Type D, mono cells)

Marksman II

Ref. No. TP-9367



SERVICE ON HYBRID VEHICLES – 100 % CLEAN AND SAFE

The market offers many A/C service units with a hybrid option, but not all of them are suitable for hybrid application. Although everyone in the industry agrees that thorough flushing of the complete system is required when changing from one refrigerant to another.

SAE J 2843 H stipulates a maximum permissible oil cross contamination of 0.1 % on the total oil volume. For 150 ml of PAG oil this translates to a mere 0.15 ml (i.e. less than a drop of oil). That said, it won't be enough to just hook on the service hoses and flood the system with refrigerant, as is common practice with some service units available in the market. Refrigerant lines, magnetic valves and service hoses will always contain residual oil, which can lead to cross contamination and dangerous high-voltage exposure.

Dometic WAECO's hybrid concept works as effectively as a high-pressure cleaner. An additional flush container is installed in the service unit and put under vacuum. The refrigerant required for

cleaning the unit's internal components is forced through the system several times, under high pressure and in alternating direction.

The result: service hoses, magnetic valves and the lines are compliant with SAE J 2099 (approved by ILK Dresden).

Flushing
performance
approved by
ILK Dresden

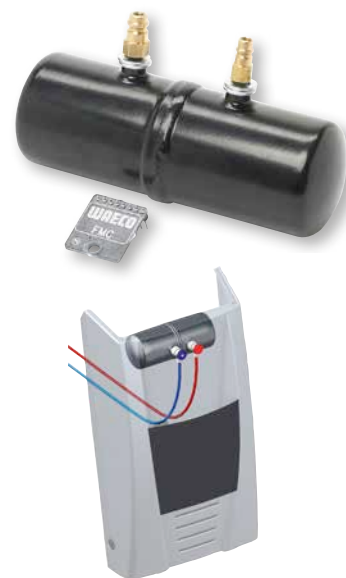
Hybrid flush kit

Special flush container for ASC-series service units

- Approved according to SAE J 2843/2788/2843H
- Suitable for use with the complete ASC series (except ASC 2000RPA)
- Simple, fully automatic cleaning and flushing of the service unit for application on hybrid vehicles
- For service on all hybrid vehicles

Scope of delivery: Flush container, special software, operating instructions

Hybrid flush kit for ASC 1000	Ref. No. 8885200260
Hybrid flush kit for ASC 2000	Ref. No. 8885200261
Hybrid flush kit for ASC 2500	Ref. No. 8885200262
Hybrid flush kit for ASC 1000 G / ASC 2000 G / ASC 2500 G / ASC 3000 G / ASC 3500 G	Art.-Nr. 8885200270
Hybrid flush kit for ASC 5000 / ASC 5000 G / ASC 5300 G / ASC 5000RPA / ASC 5500RPA	Ref. No. 8885200259
USB and flush kit for ASC 3000	Ref. No. 8885200263



High-voltage gloves

High-voltage-resistant safety gloves

- Comply with EN 60903 and CE 0333
- For professional and safe work on hybrid vehicles
- Supplied in light-proof safety packaging

High-voltage gloves	Ref. No. 8885400173
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TRACER® hybrid application

Hybrid

UV additive injection kit for hybrid vehicles

- Insulation resistance of the compressor oil won't drop
- Light-proof storage of the POE special oils in aluminium laminated bags

Scope of delivery: 3 sticks, hose, coupler, valve, charging adapter

UV additive injection

Ref. No. TP-3812

Spare cartridge, sales pack: 3 pcs.

Ref. No. TP-3811-0301



Compressor oil

Compressor oil

- Special compressor oil for high-voltage hybrid applications

WAECO DHO 1234yf, 250 ml

Ref. No. 8887200062

WAECO DHO 1234yf, 500 ml profi oil system

Ref. No. 8887200063

ND11, 100 ml

Ref. No. 8887200035

SPA2, 500 ml

Ref. No. 8887200039

SPA2, 250 ml

Ref. No. 8887200048



Oil injector

Injector for manual injection of oils and/or UV additives

- Injector for manual injection of oils and/or UV additives
- Easy-to-use, sturdy design, ideal for workshop use
- With ml and oz scales for oil and an extra scale for additive
- Supplied with hose and couplers (R 134a and R 1234yf) for use with different refrigerants and oils
- Sight glass with crash protection device for enhanced safety
- Ideal for hybrid applications, where cross-contamination of oils is not allowed (SAE J 2843H)

Oil injector

Ref. No. 8885300132



Starter kit hybrid oil

R 134a

Starter kit hybrid oil, content 120 ml

Scope of delivery: Injector assembly, adapter, solid brass R 134a hybrid coupler with check valve and purge fitting, 120 ml cartridge POE hybrid oil

Starter kit hybrid oil, content 120 ml

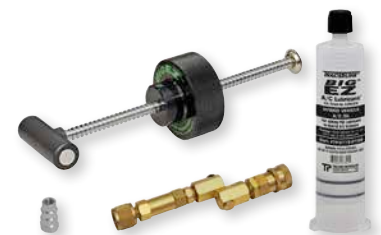
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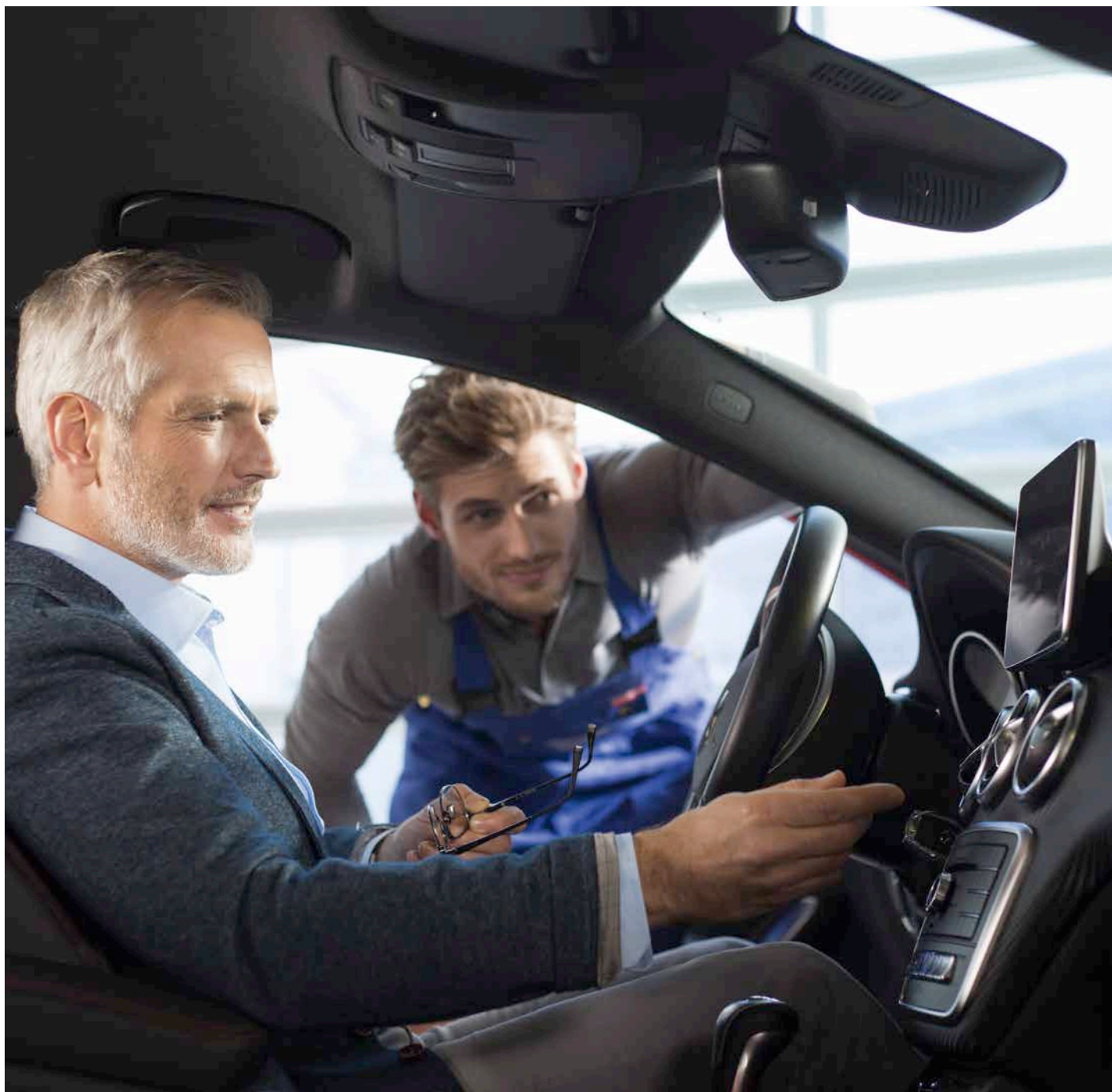
Spare cartridge

Ref. No. TP-9775-0104

Adapter for using with R 1234yf

Ref. No. TP-9831CS





AIR CONDITIONER DISINFECTION

FRESH AND HEALTHY AIR IN THE CAR

It only takes minimal effort to effectively remove harmful micro-organisms from automotive A/C systems. **WAECO's ultrasonic atomiser Refresh-o-mat HD** takes care of that service. The high performance, professional unit has been **designed inside out for workshop use**: robust stainless steel housing, power supply with IEC input filter, microprocessor controlled programme code.

The unit has the capacity to atomise up to 400 ml of cleaner fluid, which makes it suitable for disinfecting larger A/C systems on buses or trucks. Using the optional adapter kit, the atomiser can even be connected to the vehicle's air ducts to give them a thorough clean-up.

Refresh-o-mat heavy-duty ultrasonic atomiser

For professional use in workshops:

Ultrasonic technology eliminates bacteria and smells

- Robust stainless steel housing
- Integrated power transformer
- Atomises up to 400 ml of cleaner fluid (also suitable for large vehicles such as buses)

Specifications:

Power supply:	230 volts AC/50 Hz
Atomiser capacity:	approx. 383 l/h
Dimensions (WxHxD):	150 x 280 x 400 mm (incl. outlet tube)

Optional extra: Adapter kit for treatment of air ducts

Refresh-o-mat HD	Ref. No. 8885300096
Hose set	Ref. No. 8885300097



Refresh-o-mat ultrasonic atomiser

Cleans the air conditioner and neutralises odour in the passenger compartment

Specifications:

Power supply	230 volts AC/50 Hz
Input voltage	24 volts AC
Dimensions (WxHxD)	138 x 310 x 285 mm

Scope of delivery: Refresh-o-mat, high-quality case, mains adapter, hose

Refresh-o-mat	Ref. No. 8885300082
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AirCon Refresh air conditioner cleaner

For professional use in workshops:

Ultrasonic technology eliminates bacteria and smells

- Ideal for air conditioner cleaning and maintenance
- Eliminates mould, bacteria and other harmful micro-organisms from evaporators, air-vent channels and condensation drains
- Effectively prevents odour
- Can also be used with other manufacturers' equipment
- Also available in practical single-portion bottle. This ensures that only the required quantity is applied. Saves material and hence costs!

* Certification to the EN 1040 standard means that the product has a bactericide effect on a strictly defined type of test bacteria when applied undiluted at a certain product concentration over a certain period of time.



Effectiveness approved according to EN 1040*

Air conditioner cleaner, 1 litre capacity, sufficient for approx. 10 applications	Ref. No. 8887400008
Air conditioner cleaner, 100 ml capacity, sales pack: 20 pcs.	Ref. No. 8887400016





Professional
Interior
clean-up

PROFESSIONAL CLEAN-UP

ELIMINATES BACTERIA AND SMELLS

When fixing used cars for resale or giving customer cars a professional clean-up you often have to deal with persistent odours. The **ozone generator** eliminates smells effectively and without any chemicals and harmful residues. The handy unit (now also available as a heavy-duty version in a stainless steel housing) forces ozone into the vehicle's air duct. The highly reactive, triple-bonded oxygen has the ability to oxidise organic substances. In the process it neutralises bacteria, mould, viruses and other microorganisms – which are the source of the smell. The method is also effective against fungal spores, bacteria and virus strains that have become resistant to certain active substances.

A proven tool to neutralise smells in passenger compartments is the **WAECO Refresh-o-mat**. The ultrasonic atomiser is available in two different versions: as a **compact unit in a practical workshop case** or as a **heavy-duty model** enclosed in a robust stainless steel housing.



Ozone generator

Effectively eliminates unpleasant odours through oxidation with ozone

- Suitable for odour decontamination in vehicles and other interiors
- Effectively eliminates intensive odours (e.g. nicotine, mould and animal smell, lactic acid, vomit, diesel or fuel oil)
- Compact unit in a sturdy stainless steel housing
- Supplied with a flexible tube for blowing the ozone into the air duct
- Connection to the vehicle battery with 12-volt cigarette lighter plug and adapter plug



Specifications: Power supply 12 volts DC, Output approx. 500 mg/h

Scope of delivery: Ozone generator, 12-volt cigarette lighter plug, adapter plug, blow-off tube

Ozone generator

Ref. No. 8885300105

Heavy-duty ozone generator

Effectively eliminates unpleasant odours through oxidation with ozone

- Suitable for odour decontamination in vehicles and other interiors
- Effectively eliminates intensive odours (e.g. nicotine, mould and animal smell, lactic acid, vomit, diesel or fuel oil)
- Compact unit in a sturdy stainless steel housing
- Supplied with a flexible tube for blowing the ozone into the air duct
- Connection directly to 230 volts



Specifications: Power supply 230 volts AC, Output approx. 1000 mg/h

Scope of delivery: Heavy-duty ozone generator, 230 volt connection cable, blow-off tube

Heavy-duty ozone generator

Ref. No. 8885300140

Refresh-o-mat heavy-duty ultrasonic atomiser

For product details please refer to page 69



Refresh-o-mat ultrasonic atomiser

For product details please refer to page 69



Car Refresh smell stopper

Smell eliminator for use with the Refresh-o-mat

- Ideal for eliminating intensive odours in vehicle interiors, e.g. cigarette smoke, plastic emissions and animal scent
- Works chemically to give a lasting result rather than just covering up
- **Can also be used with other manufacturers' equipment**
- **Also available in practical single-portion bottle. This ensures that only the required quantity is applied. Saves material and hence costs!**

Car Refresh, 1 litre capacity, sufficient for approx. 10 applications

Car Refresh, 100 ml capacity, sales pack: 20 pcs.

Ref. No. 8887400009

Ref. No. 8887400015



INDISPENSABLE TOOLS: THE SPECIALISTS FOR PERFECT WORKMANSHIP

Service quick couplers (see page 74)

Space is often in short supply in today's engine compartments. Therefore, automotive manufacturers are also using concealed areas to accommodate air conditioner components. On some models (e.g. 5-Series BMW, Ford, Volvo, Mercedes-Benz SLK) the high-pressure-side service port is mounted near the bonnet lock bracket, inaccessible with a standard A/C service coupler. WAECO AirCon Service has developed a matching service tool for easy access to the port.

Spring lock repair set (see page 75)

Factory-fitted automotive air conditioners, especially those made by **Ford, Volkswagen and Opel**, come with spring lock couplers for quick fitting of refrigerant lines. To release these couplers you will need special tools, which WAECO supply.

Workshop kits (page 80 ff.)

Repair work on automotive air conditioning systems often involves the replacement of **small parts, such as valve cores and O-rings**. To have everything ready at hand, you need a well organised storage system with parts for specific vehicles. WAECO workshop kits include all essential parts, clearly arranged and handily organised in metal cases. The spectrum ranges from plugs to prevent moisture and contaminants from entering an open A/C system to O-ring sets for factory-fitted and retrofit A/C systems.

Miniature identifier

R 134a

The identifier helps you to check the quality and presence of R 134a in vehicle A/C systems and storage bottles

- Handy unit for simple and fast application; automatically guides the user is step by step through the application
- Shows the test result within a short period of time
- Protects your valuable A/C service unit from damage by contaminated refrigerants
- Designed for mobile use with batteries, independent of the mains
- Checks the refrigerant for illegal mixtures (imports)
- Detects non-condensable gases in the refrigerant
- Impact-resistant casing, for workshop use

Miniature identifier

Ref. No. 8885100135



Dual diagnostic thermometer

For diagnosis on two-zone air conditioners

- Ideal for measuring the air outlet temperature at the air vents
- Digital thermometer with 2 sensors and suction cup holder for the windscreen
- Sensors: 3 m long
- Measures and displays the minimum, maximum and average temperatures

Specifications:

Display	dual, with 5-digit LCD display
Operating temperature	5 °C to 40 °C at 80 % air humidity
Measuring range	-200 °C to +1050 °C

Dual diagnostic thermometer

Ref. No. 8885100127

Accessories:

Surface sensor

Ref. No. 8885100128

Temperature probe

Ref. No. 8885100129



Surface sensor

Temperature probe

LCD digital thermometer

For the exact measurement of air temperatures

- Extra-large, easy-to-read digital display
- Long probe (213 mm), excellent measuring accuracy

LCD digital thermometer

Ref. No. 8885100072



Digital pocket temperature meter

For reception testing of automotive A/C systems

- Extremely compact design allows measuring of air outlet temperature directly at the Center air vents
- Easy-to-read display

Digital pocket temperature meter

Ref. No. 8885100059



Infrared laser thermometer

Contact-free temperature measurements for automotive uses

- Ideal for measuring the air outlet temperature at the air vents
- Quick temperature checks on condenser surface or heat exchanger
- Integrated laser pointer for precise positioning of the measuring beam – exact measurements even over longish distances

Infrared laser thermometer

Ref. No. 8885100062



Pressure meter R 134a (low pressure side)

R 134a

Pressure meter for measuring the pressure in the A/C system

- Ideal for quick check at service reception
- High-quality, impact protected housing
- Easy-grip coating for optimum handling in the workshop

Pressure meter

Ref. No. 8885100096



Pressure meter R 1234yf (low pressure side)

R 1234yf

Pressure meter for measuring the pressure in the A/C system

- Ideal for quick check at service reception
- High-quality, impact protected housing
- Easy-grip coating for optimum handling in the workshop

Pressure meter

Ref. No. 8885100146



Service quick coupler HP

R 134a

For **hard-to-access** service ports

- Suitable for BMW E60 and others; Volvo S80, S60 and younger models; Mercedes M-Class; all Chrysler (USA) models and all Asian vehicles

Service quick coupler HP

Ref. No. 8885400227

**Service quick coupler LP**

R 134a

For **hard-to-access** service ports

- Suitable for Jaguar XJ (new) and all Asian vehicles

Service quick coupler LP

Ref. No. 8885400228

**Service quick coupler HP**

R 1234yf

For **hard-to-access** service ports

- For Ford, Volvo and other vehicles

Service quick coupler HP

Ref. No. 8885400340

**Service quick coupler LP**

R 1234yf

For **hard-to-access** service ports

Service quick coupler LP

Ref. No. 8885400345

**Service quick coupler HP**

R 134a

For Mercedes-Benz SLK

- For connection of A/C service units to the high-pressure service port in the SLK (R171)
- For extending the vehicle's high pressure port

Service quick coupler HP

Ref. No. 8885400117

**Service quick coupler HP to LP**

R 134a

Custom-made service quick coupler for various Renault vehicles, e.g. Laguna

- Adapter HP to LP

Service quick coupler HP to LP

Ref. No. 8885400098



Spring lock repair and disconnect set, 8 items

R 134a

For service work on spring lock connections

- Spring lock connections can be released or repaired to ensure durable leak protection
- Suitable for Audi, VW, Citroën, Chrysler, Ford, Hyundai, Peugeot, PSA, Renault, Opel, GM, Vauxhall, Seat and Skoda cars

Disconnect tool set for releasing spring lock connections. Can also be supplied separately. Not suitable for GM, Opel and Vauxhall cars.



SK44, spring lock disconnect set
Disconnect set

Ref. No. 8885300126

Ref. No. 8885300044

**Threading tool set for metric threads, 9 items**

Thread repair tools for metric threads

- Suitable for cutting female and male thread of the following sizes:
M14x1.5 female and male thread, M16x1.5 female and male thread,
M18x1.5 female and male thread, M20x1.5 female and male thread,
M22x1.5 female and male thread, M24x1.5 female and male thread,
M27x1.5 female and male thread, M28x1.5 female and male thread

Scope of delivery: 8 thread cutters (double-sided), 1 extension

Threading tool set

Ref. No. 8885300123

**Threading tool set for inch threads, 6 items**

Thread repair tools for inch threads

- Suitable for cutting female and male thread of the following sizes:
5/8" UNF, 3/4" UNF, 7/8" UNF, 1" UNF, 1-1/16" UNF

Scope of delivery: 5 thread cutters (double-sided), 1 extension

Threading tool set

Ref. No. 8885300124

**Adjustable spanner**

Spanner (adjustable from 0 – 30 mm)

- Spanner and ratchet all in one, simply move a lever to change between functions
- Convenient and durable
- Excellent torque
- Ergonomic, soft-grip handle

Adjustable spanner

Ref. No. 8885300133

**Solenoid valve opener**

Tool for opening solenoid valves

- For use on buses
- Opens locked refrigerant circuits
- Can be used for 18 mm / 10 mm solenoid valve coils
- Small and handy, fits into every pocket and thus saves time

Solenoid valve opener

Ref. No. 8885300131



example of use

Octagon sockets for fitting service valves / O-ring pick tool

Thin-walled sockets for exchanging 8-sided service ports (R 134a)

- Special tool for picking O-lock gaskets on refrigerated vehicles or standard O-rings

For low-pressure side

Ref. No. 8885300032

For high-pressure side

Ref. No. 8885300033

for removal of expansion valves on VW and Audi cars

Ref. No. 8885300092

O-ring pick tool

Ref. No. 8885300094



8885300092

O-ring pick tool

Manuli case set

Manuli case set

- Tool set for working with Manuli fittings
- The hose cutter is necessary in order not to damage the inner plastic core during cutting
- Using the special fitting tool, fittings can be sealed quickly and reliably – and released, if required

Scope of delivery: Fitting tool, hose cutter, mandrel

Manuli case set

Ref. No. 8885300060

Spare blade

Ref. No. 8885300066



Valve fitting tools

Fitting tool for Schrader valves used in R 134a A/C systems, e.g. on Ford or Japanese vehicles

- For high- and low-pressure side; connection diameters: 6.3 and 4.5 mm

Torque wrench

- For high- and low-pressure side; connection diameter 4.5 mm

For Ford or Japanese vehicles

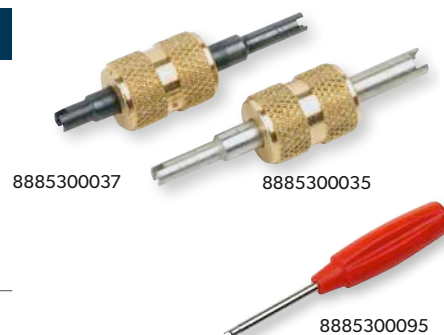
Ref. No. 8885300037

For Ford, French or Japanese vehicles

Ref. No. 8885300035

Torque wrench

Ref. No. 8885300095



8885300037

8885300035

8885300095

Crimping tool for refrigerant fittings

Extremely sturdy, heavy-duty tool kit for fast and reliable connection of hoses and fittings

- Operated by integrated hydraulic hand pump
- Equally suitable for use with aluminium and thin-walled steel fittings
- Socket sets for four hose sizes (6 – 8 – 10 – 12) included in the kit

Scope of delivery: Crimping tool and 7 socket sets

Supplied in sturdy service case

Ref. No. 8885300045

Hose cutter

Ref. No. 8885300002



8885300045

8885300002

Set of special ring spanners

Set of ring spanners for the opening/closing of air conditioner pipes and threaded connections

- Universal set of ring spanners, sizes:
10 mm / 11 mm / 13 mm /
17 mm / 19 mm / 22 mm
- Supplied in high quality tool bag



Set of special ring spanners

Ref. No. 8885300093

Easy repair set for aluminium refrigerant pipes

All you need for repairing refrigerant pipes in a single set!

- Universal set for mobile repairs on original pipes
- Easy, fast and low-cost repair of original pipes – no need to wait for spares
- Simple adaptation to hose connections
- Compact solution – complete with matching tools
- 5 sets in a sturdy transport box, perfect for mobile use
- Sets can be taken out individually
- Fast access to various parts, no need to search around for matching parts
- Spare connectors and pipes can be ordered individually

100
items



Easy repair set, 100 items

Ref. No. 8885300150



**CHECK OUT OUR COMPLETE RANGE AT
AIRCONSERVICE.EU/EASY-REPAIR**

Charging hoses and vacuum hoses

R 134a

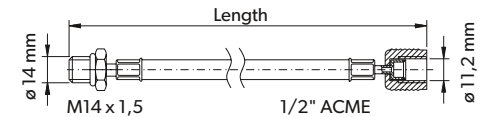
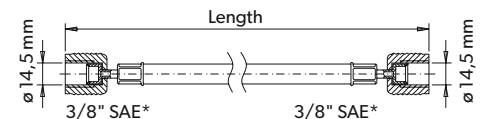
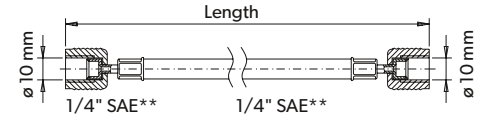
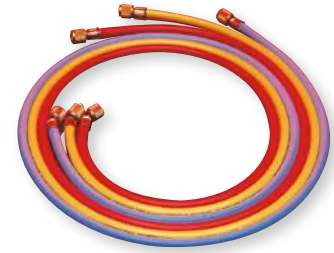
Service hoses in various colours for all applications in A/C fitting and service

- Suitable for all commonly available refrigerants
- Highly flexible material allows use even in hard-to-access areas of automotive A/C systems
- Connection thread as per SAE standard

Red hose, 1800 mm	Ref. No. 8885100005
Blue hose, 1800 mm	Ref. No. 8885100006
Yellow hose, 1800 mm	Ref. No. 8885100007
Spare seal	Ref. No. 8885400022

Red hose, 1800 mm	Ref. No. 8885100008
Red hose, 5000 mm	Ref. No. 8885100024
Blue hose, 1800 mm	Ref. No. 8885100009
Blue hose, 5000 mm	Ref. No. 8885100023
Yellow hose, 1800 mm	Ref. No. 8885100010
Spare seal, sales pack: 10 pcs.	Ref. No. 8881500037
Seal	Ref. No. 8885400023

Red hose, 1800 mm	Ref. No. 8885100011
Red hose, 3000 mm, standard ASC	Ref. No. 8885100065
Red hose, 5000 mm	Ref. No. 8885100026
Red hose, 8000 mm	Ref. No. 8885100028
Blue hose, 1800 mm	Ref. No. 8885100012
Blue hose, 3000 mm, standard ASC	Ref. No. 8885100064
Blue hose, 5000 mm	Ref. No. 8885100025
Blue hose, 8000 mm	Ref. No. 8885100027
Spare seal	Ref. No. 8881500034

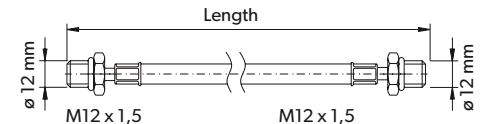
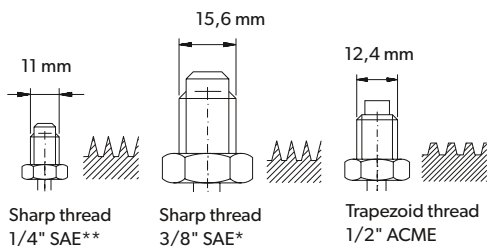


For connection to A/C service units RHS-910, RHS-950 and RHS-1050, the adapter 8885400038 is required.

Charging hoses and vacuum hoses

R 1234yf




























Red hose, 3000 mm	Ref. No. 4440600175
Blue hose, 3000 mm	Ref. No. 4440600176
Red hose, 5000 mm	Ref. No. 8885100154
Blue hose, 5000 mm	Ref. No. 8885100153



Ref. No. Description

8885400129	Connection adapter for reusable refrigerant bottle with seal
8881500091	Seal for connection adapter 8885400129
8885400024	Service quick coupler, low pressure, for R 134a with 3/8" SAE outside thread
8885400025	Service quick coupler, high pressure, for R 134a with 3/8" SAE outside thread
8885400089	Service quick coupler, low pressure, for R 134a with 1/4" SAE outside thread
8885400090	Service quick coupler, high pressure, for R 134a with 1/4" SAE outside thread



Ref. No.	Description	
8885400026	Service quick coupler, low pressure, for R 134a with M14 x 1.5 inside thread	
8885400027	Service quick coupler, high pressure, for R 134a with M14 x 1.5 inside thread	
8881500090	Service port low pressure, R 134a, with outside thread, for Mercedes-Benz, Porsche, BMW, MAN, Opel	
8881500088	Service port low pressure, R 134a, with inside thread, for VW, Audi, Ford, Chrysler	
8881500087	Service port, high pressure, R 134a, with outside thread, for Mercedes-Benz, Porsche, BMW, MAN, Opel	
8881500089	Service port, high pressure, R 134a, with inside thread, for VW, Audi, Ford, Chrysler	
8881500006	Sealing cap for service port, R 134a, high pressure	
8881500007	Sealing cap for service port, R 134a, low pressure	
8881500038	Sealing cap for service port, R 134a, high pressure, for Japanese A/C systems	
8881500039	Sealing cap for service port, R 134a, low pressure, for Japanese A/C systems	
8885400033	Connection adapter with 1/4" SAE inside thread and connection for R 134a service quick coupler, low-pressure side	
8885400082	Connection adapter with 1/4" SAE inside thread for high-pressure side	
8885400037	Connection adapter with 3/8" SAE inside thread and connection for R 134a service quick coupler, low-pressure side	
8881500013	90° retrofit adapter for the high-pressure side with 1/4" inside thread	
8881500014	90° retrofit adapter for the high-pressure side with 3/16" inside thread	
8881500015	90° retrofit adapter for the low-pressure side with 1/4" inside thread	
8885400036	Retrofit adapter, straight, comprising one high-pressure and one low-pressure adapter, each with 1/4" inside thread	
8881500017	Retrofit hose adapter, with 3/16" SAE inside thread and 1/4" SAE outside thread	
8881500018	90° retrofit hose adapter, with 1/4" SAE inside and outside thread	
8885400038	Adapter 1/4" SAE inside thread x 1/2" ACME outside thread	
8885400050	Adapter 1/4" SAE inside thread x 3/8" SAE outside thread	
8885400051	Adapter 3/8" SAE inside thread x 1/4" SAE outside thread	
8885400052	Adapter for Audi 100/A6 original A/C systems for connection of a service quick coupler on the suction side	
8885400034	Adapter 1/4" x low-pressure side	
8885400035	Adapter 1/4" x high-pressure side	
4440600148	Adapter for R 1234yf refrigerant bottles, for large bottle valves -> HP	
8885400238	Adapter for R 1234yf refrigerant bottles, 1/2" ACME left -> HP	

Set of chip filters, 60 items

Filter catches contaminants coming from the system to protect the compressor

- Keeps the compressor free from chips, recommended e.g. when a new one was fitted
- Easy to fit; no need to cut pipes or insert fittings
- Choice of sizes to suit different A/C systems

Scope of delivery: 60 filters in 20 different sizes, SK47 including tools

SK47, with tools	Ref. No. 8885300128
Filter for Audi A3, VW Golf V and VW Touran	Ref. No. 8887300038
Chip filter 22 mm, set of 3 items	Ref. No. 8887300019
Chip filter 23 mm, set of 3 items	Ref. No. 8887300020



Set of valve cores, 70 items

Set of valve cores – avoids time-consuming search and procurement

Scope of delivery:

- 10 Valve cores R 134a
- 10 Valve cores R 134a for Japanese make A/C systems
- 10 Valve cores R 134a for Ford / Opel
- 5 Sealing caps for service port R 134a high pressure
- 5 Sealing caps for service port R 134a low pressure
- 5 Sealing caps for service port R 134a high pressure for Japanese make A/C systems
- 5 Sealing caps for service port R 134a low pressure for Japanese make A/C systems
- 5 Service ports high pressure R 134a with outside thread for Mercedes-Benz/Porsche/BMW/MAN/Opel
- 5 Service ports low pressure R 134a with inside thread for VW/Audi/Ford/Chrysler
- 5 Service ports high pressure R 134a with inside thread for VW/Audi/Ford/Chrysler
- 5 Service ports low pressure R 134a with outside thread for Mercedes-Benz/Porsche/BMW/MAN/Opel

SK25, set of valve cores	Ref. No. 8885300116
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Set of plugs for refrigerant lines, 179 items

Prevent moisture and contaminants from entering the A/C system during servicing work

Scope of delivery:

20 MF 9/16"	Ref. No. 8881500022
15 MF 5/8"	Ref. No. 8881500023
10 MF 3/4"	Ref. No. 8881500024
10 MF 7/8"	Ref. No. 8881500025
20 FF 9/16"	Ref. No. 8881500027
10 FF 5/8"	Ref. No. 8881500028
10 FF 3/4"	Ref. No. 8881500029
10 FF 7/8"	Ref. No. 8881500030
20 7.6 – 9.4 mm	Ref. No. 8881500180
20 8.4 – 10.2 mm	Ref. No. 8881500181
20 11.3 – 13.1 mm	Ref. No. 8881500182
14 20.7 – 23.5 mm	Ref. No. 8881500183

SK33, set of plugs	Ref. No. 8885300120
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Orifice Tubes, 41 items

Set of orifice tubes for automotive A/C systems with accumulator

- The SK set of orifice tubes allows the user optimum, cost-saving working because it avoids time-consuming search and procurement

Scope of delivery:

5 Orifice tube (red)	Ref. No. 8881100003
5 Orifice tube (white)	Ref. No. 8881100004
5 Orifice tube (brown)	Ref. No. 8881100005
5 Orifice tube (blue)	Ref. No. 8881100007
5 Orifice tube (orange)	Ref. No. 8881100008
5 Orifice tube (grey)	Ref. No. 8881100038
5 Orifice tube (violet)	Ref. No. 8881100039
5 Orifice tube (yellow)	Ref. No. 8881100040
1 Orifice tube tool	Ref. No. 8885400040
<hr/>	
SK26, set of orifice tubes	Ref. No. 8885300117



Original replacement O-rings, 654 items

R 134a

For all common types of cars

- To save you from time-consuming procurement processes, we have put together a professional set of O-rings to replace virtually all O-ring connections on original A/C systems of the following makes:

Alfa-Romeo, Audi, BMW, Citroën, Fiat, Ford, Honda, Hyundai, Jaguar, Mazda, Mercedes-Benz, Mitsubishi, Nissan, Opel, Peugeot, Porsche, Renault, Rover, Saab, Subaru, Suzuki, Toyota, Volkswagen, Volvo

SK31, set of O-rings for cars Ref. No. 8885300118



Original replacement O-rings, 330 items

R 134a

For all common types of trucks and vans

- Workshop kit for all servicing and repair works on A/C systems in trucks and vans, 17 different O-rings (330 items)

SK32, set of O-rings for trucks Ref. No. 8885300119



Universal oil for the coating of O-rings in vehicle A/C systems

For all common types of trucks and vans

- Small and compact can (100 ml) with brush in the cap
- New O-rings need to be coated with oil so that they achieve a good sealing effect when sliding. The threads must also be coated
- Compatible with nearly all lubricants
- Suitable for all kinds of refrigerants
- Does not absorb moisture (non-hygroscopic)

Universal oil for the coating of O-rings in vehicle A/C systems Ref. No. 8887200047



O-rings for R 134a refrigerant on retrofit A/C systems, 200 items

This workshop kit contains all the O-rings needed for servicing work on retrofitted A/C systems

Scope of delivery:

10 Valves R 134a	Ref. No. 8881500001
5 R 134a charging valves for Japanese make units	Ref. No. 8881500002
30 O-rings 6 R 134a	Ref. No. 8881500008
30 O-rings 8 R 134a	Ref. No. 8881500009
30 O-rings 10 R 134a	Ref. No. 8881500010
30 O-rings 12 R 134a	Ref. No. 8881500011
10 O-rings 6-6/16"	Ref. No. 8881500012
2 O-rings for compressor	Ref. No. 8881500020
10 O-rings for compressor	Ref. No. 8881500130
3 Seals for charging hose 1/4"	Ref. No. 8885400023
10 O-ring pressure switches, outside thread	Ref. No. 8881500055
10 O-ring pressure switches, inside thread	Ref. No. 8881500033
3 Seals R 134a for service hose	Ref. No. 8881500034
10 Seals OR	Ref. No. 8881500036
10 Seals for charging hose	Ref. No. 8885400037
5 O-rings for charging hose R 134a	Ref. No. 8881500041
SK06, set of O-rings	Ref. No. 8885300114



Original replacement special O-rings for various French make car A/C systems, 44 items

The ideal supplement to the SK 31 basic set

- Includes various special O-rings for French make cars
- 12 different designs / dimensions

SK39, set of special O-rings Ref. No. 8885300109



Original replacement special O-rings for various German make car A/C systems, 84 items

The ideal supplement to the SK 31 basic set

- Includes various special O-rings for German make cars
- 7 different designs / dimensions

SK40, set of special O-rings Ref. No. 8885300110



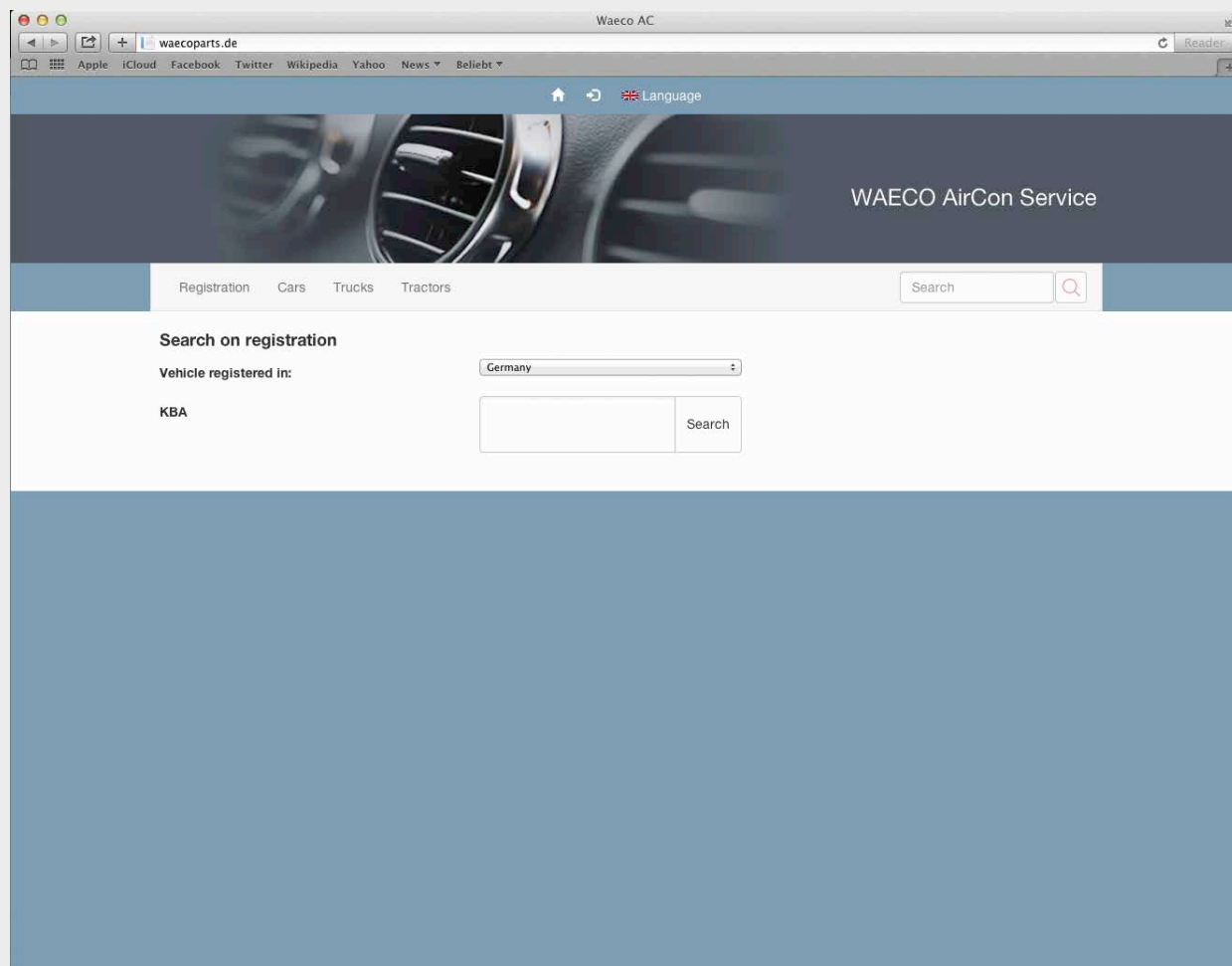
Universal oil for the coating of O-rings in vehicle A/C systems

For all common types of trucks and vans

- Small and compact can (100 ml) with brush in the cap
- New O-rings need to be coated with oil so that they achieve a good sealing effect when sliding. The threads must also be coated
- Compatible with nearly all lubricants
- Suitable for all kinds of refrigerants
- Does not absorb moisture (non-hygroscopic)

Universal oil for the coating of O-rings in vehicle A/C systems Ref. No. 8887200047





ONLINE CATALOGUE – WAECOPARTS.COM

Don't search, find! The WAECO AirCon Parts online catalogue is as quick and easy to use as your TecDoc search engine. It provides detailed vehicle descriptions with all vehicle-specific parameters included on a clearly structured platform.

CROSS REFERENCE LISTS

The number of air conditioned cars on European roads is steadily increasing, and so is the demand for spares. With a virtually complete range of A/C spare parts Dometic WAECO offers profitable business opportunities for quality-conscious workshops.

Under www.waecoparts.com you can also find cross references to the A/C parts of original equipment manufacturers and other suppliers. Using these cross reference lists you can easily replace any commonly used A/C part with a WAECO AirCon part.

Check it out for yourself!



Ref. No.	Description
8887300008 R 134a 8887300043 R 1234yf	Click Lock service quality seal



8887300007	Service stickers Sales pack: 5 pcs.
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8887100007	Refillable steel bottle R 134a Refill only
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8887100019	Refillable steel bottle R 1234yf Refill only
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8887200058 8887200060 8887200059 8887200061 8887200021	R 134a original oils PAG ISO 46, 250 ml PAG ISO 100, 250 ml PAG ISO 46, 500 ml PAG ISO 100, 500 ml ND 8, 500 ml
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8887200001 8887200002 8887200008	R 134a aftermarket PAG ISO 46, 250 ml PAG ISO 100, 250 ml PAG ISO 150, 250 ml
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8887200013 8887200014 8887200019 8887200017 8887200028	R 134a aftermarket PAG ISO 46, 500 ml PAG ISO 100, 500 ml PAG ISO 150, 500 ml Universal PAO, 500 ml Ester oil SE 55, 500 ml
--	---



8887200021 8887200035 8887200031 8887200046 8887200039	R 1234yf original oils ND 8, 500 ml ND 11, 100 ml ND 12, 100 ml VC 200yf, 500 ml SPA 2, 500 ml
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Ref. No.	Description
8887200062 8887200063 8887200048	R 1234yf original oils PAG ISO 46yf, 250 ml PAG ISO 46yf, 500 ml SPA2, 250 ml



887200006	Ester compressor oil for R 134a and R 404, 1000 ml
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8887200009	Universal PAO ISO 68 compressor oil 1000 ml
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8887200047	Universal oil for the coating of O-rings in vehicle A/C systems 100 ml
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8887200018	Vacuum pump oil ISO 32, 1000 ml
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8887300018	Leak detection spray 500 ml
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TP-9000-0008 TP-9000-0016	TRACER® GLO-AWAY Spray bottle, 225 ml Refill bottle, 450 ml
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TP-3400-0601 TP-3900-0601	TRACER® dyes for oils and fuels, sales pack: 6 pcs. for cooling water sales pack: 6 pcs.
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Ref. No.	Description		Ref. No.	Description	
TP-3860-0601	TRACER® sticks for R 134a in combination with PAG oil sales pack: 6 pcs.		TP-3812	UV additive injection kit for hybrid vehicles	
TP-9860-0301, 3 cartridges of 14 ml TP-9760-0304, 3 cartridges of 118 ml	TRACER® cartridge for R 134a in combination with PAG oil		TP-3811-0301	Spare cartridge	
TP-3820-0008	TRACER® bottle for R 134a in combination with PAG oil, 236 ml		8887400008	Air conditioner cleaner 1000 ml	
TP-3820-0016	TRACER® bottle for R 134a in combination with PAG oil, 475 ml		8887400016	Air conditioner cleaner 100 ml, sales pack: 20 pcs.	
TP-3820-0301	TRACER® bottle for R 134a in combination with PAG oil, sales pack: 3 pcs.		8887400009	Car Refresh smell eliminator 1000 ml	
TP-3820-0301	TRACER® bottle for R 134a in combination with PAG oil, sales pack: 3 pcs.		8887400015	Car Refresh smell eliminator 100 ml, sales pack: 20 pcs.	
TP-9825-0301, 3 cartridges of 14.8 ml TP-3825-0008, 237 ml	TRACER® UV additive UV tracer dye for R 1234yf refrigerant		8887300001	Insulating material Tar tape Application temperature: -29 °C ~ + 93 °C	
TP-3820-500	UV TRACER® dye Profi oil system, 500 ml, R 134a		8887300002	Neoprene tape Application temperature: -40 °C ~ + 105 °C	
TP-3825-500	UV TRACER® dye Profi oil system, 500 ml, R 1234yf			Heat protection pipe ⁽¹⁾ For fitting on refrigerant lines, aluminium coated on one side, highly extendable and flexible, suitable for temperatures up to 600 °C	
				Heat protection hose with Velcro fastener ⁽²⁾ For fast retrofitting on refrigerant lines, suitable for temperatures up to 600 °C	
				⁽¹⁾ 8887300003, Length: 425 mm, Ø inside 26,5 mm	
				⁽¹⁾ 8887300004, Length: 240 mm, Ø inside 36,5 mm	
				⁽²⁾ 8887300005, Length: 1000 mm, Ø inside max. 30 mm	

ASC 1000 G

R 134a

Basic entry-level package for A/C service use

- AirCon Service Center ASC 1000 G Ref. No. 9103301843
- 236 ml refillable TRACER® bottle and 50-watt leak detection lamp Ref. No. TP-1151
- R 134a refrigerant, refillable bottle, 12 kg capacity Ref. No. 8887100007
- SK31 Original replacement O-rings for R 134a refrigerant and PAG oil Ref. No. 8885300118
- Dual diagnosis thermometer Ref. No. 8885100127
- GLO-AWAY® spray bottle Ref. No. TP-9000-0008
- Universal valve fitting tool Ref. No. 8885300037
- TRACER® UV additive (in patented container) Ref. No. TP-3820-500
- 100 ml Universal oil for coating of o-rings Ref. No. 8887200047



ASC 2000 G

R 134a

To improve the efficiency of their professional A/C service business

- AirCon Service Center ASC 2000 G Ref. No. 9103301841
- R 134a refrigerant, refillable bottle, 12 kg capacity Ref. No. 8887100007
- Dual diagnosis thermometer Ref. No. 8885100127
- LED blue light UV leak detection lamp Ref. No. TP-8690X
- GLO-AWAY® spray bottle Ref. No. TP-9000-0008
- Universal valve fitting tool Ref. No. 8885300037
- TRACER® UV additive (in patented container) Ref. No. TP-3820-500
- 100 ml Universal oil for coating of o-rings Ref. No. 8887200047



ASC 2500 G

R 134a

The high end package for professionals

- AirCon Service Center ASC 2500 G Ref. No. 9103301871
- R 134a refrigerant, refillable bottle, 12 kg capacity Ref. No. 8887100007
- Dual diagnosis thermometer Ref. No. 8885100127
- LED blue light UV leak detection lamp Ref. No. TP-8690X
- GLO-AWAY® spray bottle Ref. No. TP-9000-0008
- Universal valve fitting tool Ref. No. 8885300037
- TRACER® UV additive (in patented container) Ref. No. TP-3820-500
- 100 ml Universal oil for coating of o-rings Ref. No. 8887200047
- Mini Identifier Ref. No. 8885100135



ASC 3000 G

R 134a

Package solution for A/C service on buses, rail cars, etc.

- AirCon Service Center ASC 3000 G Ref. No. 9103301845
- R 134a refrigerant, refillable bottle, 12 kg capacity Ref. No. 8887100007
- SK31 Original replacement O-rings for R 134a refrigerant and PAG oil Ref. No. 8885300118
- Solenoid valve opener Ref. No. 8885300131
- Multi-gas leak detector Ref. No. 8885100124
- Nitrogen pressure reducer Ref. No. 8885400172
- Hose set for nitrogen pressure reducer Ref. No. 8885400136
- Ester oil, 1 litre Ref. No. 8887200006
- Universal valve fitting tool Ref. No. 8885300037
- Charged with 5 kg of R 1234yf refrigerant Ref. No. 8887100019
- 100 ml Universal oil for coating of o-rings Ref. No. 8887200047

**ASC 5300 G**

R 1234yf

Basic entry-level package for R 1234yf A/C service

- AirCon Service Center ASC 5300 G Ref. No. 9103301869
- Dual diagnosis thermometer Ref. No. 8885100127
- LED blue light UV leak detection lamp Ref. No. TP-8690X
- GLO-AWAY® spray bottle Ref. No. TP-9000-0008
- Special oil SPA2 for R 1234yf (in patented container) Ref. No. 8887200039
- Adapter for R 1234yf refrigerant bottle Ref. No. 8885400206
- TRACER® UV additive (in patented container) Ref. No. TP-3825-500
- Charged with 5 kg of R 1234yf refrigerant Ref. No. 8887100019
- 100 ml Universal oil for coating of o-rings Ref. No. 8887200047
- Optional analyse unit Ref. No. 8885200278

**ASC 5500RPA**

R 1234yf

High end package for professional R 1234yf A/C service

- AirCon Service Center ASC 5500RPA Ref. No. 9103301870
- Dual diagnosis thermometer Ref. No. 8885100127
- LED blue light UV leak detection lamp Ref. No. TP-8690X
- GLO-AWAY® spray bottle Ref. No. TP-9000-0008
- Special oil SPA2 for R 1234yf (in patented container) Ref. No. 8887200039
- Adapter for R 1234yf refrigerant bottle Ref. No. 8885400206
- TRACER® UV additive (in patented container) Ref. No. TP-3825-500
- Charged with 5 kg of R 1234yf refrigerant Ref. No. 8887100019
- 100 ml Universal oil for coating of o-rings Ref. No. 8887200047



WHAT ARE THE THINGS TO NOTE WHEN DEALING WITH R 1234YF?

The “new” R 1234yf refrigerant has a different chemical composition and thus other properties than R 134a. The service unit’s pressurised containers, hoses, gaskets and manometers have to be adapted accordingly. R 1234yf may never be processed in

service units designed for use with R 134a. Refrigerant storage conditions are also different from those formerly applicable. Workshop operators must provide for proper ventilation and ensure operating safety regulations are met.

WHAT ARE THE THINGS TO NOTE WHEN BUYING AN A/C SERVICE UNIT FOR R 1234YF?

A/C workshops are most likely to have at least two different service units in the future, because R 134a and R 1234yf must not be mixed. To avoid confusion, the units should be clearly recognisable. R 1234yf service units are subject to special safety regulations, because the “new” refrigerant must not escape into the atmosphere.

Therefore, a suitable R 1234yf service station should perform a fully automatic self test prior to every start-up to check if the unit is tight

and trace potential leaks. Service couplers should also be different from those used for R 134a units to avoid the risk of confusion when connecting the service equipment. R 1234yf service couplers should have what is called a “ventilated clearance” to ensure that no refrigerant escapes from the air conditioner even when you have a defective Schrader valve. Last but not least, the use of refrigerant analysis tools is mandatory. The analysis tool checks the purity of the refrigerant to prevent dangerous cross contamination. Ideally, it is already integrated in the service station.

WHY SHOULD WORKSHOPS NOT INVEST IN A COMBO SERVICE UNIT?

Combo service units suitable for both refrigerants are more complex and therefore more expensive. This is because two separate refrigerant circuits need to be integrated into a single unit. If one of the circuits fails, the complete service unit is useless.

Costly downtimes are the result. You can only do one service job at a time, while the unit’s second function remains unused. Apart from that many workshops already have at least one service unit for R 134a.

ARE THERE SPECIAL PAG OILS AND UV ADDITIVES FOR R 1234YF A/C SYSTEMS?

R 1234yf A/C systems require special, perfectly coordinated compressor oils and UV additives, which must be stored in

moisture-free conditions. We recommend the patented bottle system from WAECO.

HOW WILL PRICES FOR R 1234YF REFRIGERANT DEVELOP?

As it looks today the price for R 1234yf refrigerant will be way above that of R 134a. The workshop selling price will be about 130 euros per kilogram, which means any refrigerant lost will cost a pretty penny. A conventional service unit losing 100 grams of refrigerant per service means you are losing a total of 25 euros every time. Things are different with the ASC 5500RPA from

WAECO. This service unit uses a patented low emission concept which guarantees a refrigerant loss rate of close to zero percent.

TROUBLESHOOTING CHART

FOR VEHICLE AIR CONDITIONING SYSTEMS

Introduction

The professional tips chart provides help and support when troubleshooting the air conditioning systems. This clearly arranged diagnosis guide will help you find the typical

functional errors that may occur in air conditioning systems for vehicles.

Legend

AC = air conditioning

LP = suction pressure

HP = high pressure

V = compressor with suction pressure regulator

F = compressor with constant displacement

How to use the chart

Professional tips can only be performed properly if the appropriate workshop equipment is available. The required equipment can be found in our workshop catalogue. Follow the operations listed on

the following pages step by step. Only then can you be certain to achieve a good result from your troubleshooting efforts.

Step 1 Test conditions/preparations

Step 2 Performance test air conditioning system

Step 3 If a malfunction occurs, it must be grouped into one of the three specific types of errors, which are summarised in three standard worksheets.

Base table A The air conditioning system does not cool

Base table B The air conditioning system produces an inappropriate noise

Base table C The air conditioning system produces an odour

Step 4 The fault can then be diagnosed using the relevant worksheets. The specific worksheets provide useful assistance for troubleshooting.

Worksheet 1 Insufficient heat dissipation via the condenser

Worksheet 2 The refrigerant quantity is incorrect and non-condensable gases or moisture occur in the system

Worksheet 3 Faulty expansion valve

Worksheet 4 Fault in the suction pressure regulator (V5)

Worksheet 5 Fault in the compressor's electrical magnetic coupling, i.e. the coupling slips or does not engage

Worksheet 6 The suction and pressure lines on the compressor are reversed

Worksheet 7 Stoppage in the refrigerant circuit

Worksheet 8 Ice formation in the evaporator

Worksheet 9 Faulty compressor

Worksheet 10 Penetration of hot air into the compartment/circulation of hot water in the heating system's heat exchanger

Table

STEP 1

TEST CONDITIONS/PRELIMINARY STEPS

Connect the WAECO filling station to the low pressure side (L.T.) and the high pressure side (H.T.) on the air conditioner's service connection.

On vehicles with mechanical a thermostat, it must be ensured that the thermostat setting is correct and it should be adjusted if necessary (setting values: final position clockwise, 1/4 turn back, then adjustment).

Start the engine and set the engine speed at 1500 – 2000 rpm.

Start the air conditioning system by pressing air conditioning button.

Select fan level 2 or 3.

Measure the temperature in the vehicle and in the workshop with the thermometer.

If the cabin temperature is lower than the room temperature.

Let the air conditioner work under these conditions for 5 – 10 minutes.

Then carry out a performance check on the air conditioner.

NOTE

For outside temperatures above 28°C, the recirculation function must be selected (refer also to the vehicle manual) in order to prevent hot air from entering from the outside.

If the cabin temperature is higher than the outside temperature.

Open windows and doors. Wait until the indoor and outdoor temperatures have levelled off (or until a fairly even temperature level is achieved).

Close windows and doors.

STEP 2

PERFORMANCE VERIFICATION OF AIR CONDITIONERS

The execution must follow the settings for the test conditions described in step 1.

Measure the air inlet temperature with the temperature measurement instrument. For this purpose, the measuring instrument's sensor must be exactly in the middle nozzle.

Start the engine and set the engine speed at 1500 – 2000 rpm.

Temperature table

Outside temperature at the vehicle/ ambient temperature	20°C	25°C	30°C	35°C
Exhaust-temperature at the Center nozzle	6 – 8°C	7 – 10°C	8 – 12°C	10 – 14°C

NOTE

Compare the obtained values with the data specified according to the temperature table.

The measured value obtained is higher than the value that is specified in the temperature table.

For problem-solving, use base table A.

Does the air conditioning system have an abnormally loud noise?

For problem-solving, use base table B.

Does the air conditioner cause an unpleasant smell?

For problem-solving, use base table C.

The air conditioning unit works flawlessly.

STEP 3 – BASE TABLE A

THE AIR CONDITIONING SYSTEM DOES NOT COOL

The table below shows the normal operating pressure values for the air conditioning system, which occur when the aforementioned initial conditions are configured. If the pressure values are not

achieved, it must be assumed that there is an error in the air conditioning system.

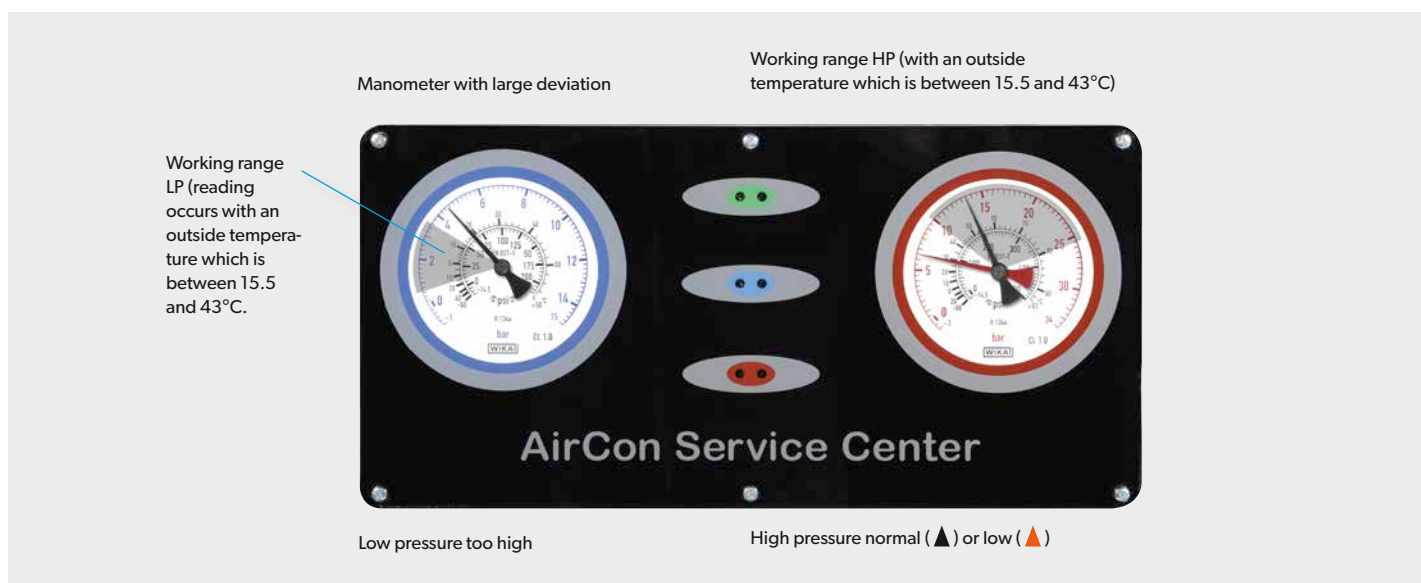
Outdoor temperature °C	Compressor with suction pressure regulator (V) (Example: Harrison V5)				Compressor constant displacement (F) (Example: SD 7H15, SS121DS1, etc.)							
	R134A LP (bar _a)		R134A HP (bar _a)		R134A LP (bar _a)		R134A HP (bar _a)		R134A LP (bar _a)		R134A HP (bar _a)	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
15.5	1.5	2.3	9.5	13.0	0.5	3.0	9.5	13.0	0.5	3.0	8.5	12.0
21.0	1.5	2.3	12.5	17.5	0.5	3.0	12.5	17.5	0.5	3.0	10.5	17.5
26.5	1.5	2.3	14.0	20.5	0.5	3.0	14.0	20.5	0.5	3.0	12.5	19.0
32.0	1.5	2.5	16.0	24.0	0.5	3.5	16.0	24.0	0.5	3.5	14.0	22.0
38.8	1.5	2.5	18.5	25.5	0.5	3.5	18.5	25.5	0.5	3.5	16.0	23.0
43.0	1.5	2.5	22.0	28.0	0.5	3.5	22.0	28.0	0.5	3.5	19.0	25.0

If the pressure values are not within the specified limits, the reason for this must be determined. The basis of the considerations when troubleshooting is the measurement of the values for the air

conditioning system's suction pressure and high pressure using a manometer. Please bear in mind that in a depressurised condition (ambient pressure), the manometers should indicate "0".

EXAMPLE OF USING THE DIAGNOSIS SHEET

For a clear explanation, the manometer is illustrated below in an enlarged scale with the largest deviation in relation to the normal value.



NOTE!

The information listed on the following pages could be possible causes. Under certain conditions, other causes of error could be present.
Symbol (V) – only for compressors with a suction pressure regulator
Symbol (F) – only for compressors with a fixed displacement

PROFESSIONAL TIPS

Error

Possible cause



Low pressure too high

High pressure normal (l) or too low (s)

- The suction and pressure lines on the compressor are reversed (see Worksheet 6)
- The compressor magnetic coupling slips or does not engage (see Worksheet 5)
- The expansion valve is blocked in the open position. If the air conditioner is equipped with a compressor with a suction pressure regulator, small but rapid changes in pressure occur on the low pressure side (see Worksheet 3).
- (V) The compressor's suction pressure valve is defective or the factory setting is not suitable (see Worksheet 4)
- The compressor is damaged (see Worksheet 9)



Low pressure too low

High pressure high (H) or normal (l)

- (F) The thermostat is defective (see Worksheet 8)
- (F) The expansion valve is closed, i.e. blocked or clogged (see Worksheet 3)
- The drying filter is saturated with moisture (see Worksheet 2)
- (V) The compressor's suction valve is blocked for the largest transport volume (see Worksheet 4)
- (F) Stoppage in the refrigerant line between the filter and the expansion valve (see Worksheet 7)



Low pressure normal (l) or too low (s)

High pressure normal

- Inflow of warm air in the evaporator or in the compartment (see Worksheet 10)
- Inflow of warm water in the heating system's heat exchanger (see Worksheet 10)
- Icing in the evaporator unit (see Worksheet 8)

PROFESSIONAL TIPS

Error



Low pressure high (H)
or normal (I)

High pressure too high

Possible cause

- Possible normal operating pressure at high ambient temperature ($> 43^{\circ}\text{C}$)
- Excessive refrigerant filling (30-35% more than the prescribed amount, see Worksheet 2)
- Impurities in the condenser
- (V) Defective suction pressure regulator on the compressor (see Worksheet 2)
- Stoppage on the high pressure side between the compressor, condenser and filter.
Important – the stoppage can only be in the area around the service connection for high pressure, not on the low pressure side.



Low pressure normal (I) or too low (s)

High pressure too low

- Possible normal operating pressure at low ambient temperatures ($> 5^{\circ}\text{C}$)
- Possible normal operating pressure at low ambient temperatures
- Low refrigerant volume, 70-75% below normal amount (see Worksheet 2)
- (V) The expansion valve is closed (blocked) or clogged (see Worksheet 3)
- (V) Stoppage on the low or high pressure side between the filter and evaporator (see Worksheet 7)
- Stoppage between the compressor and condenser or the condenser and filter, however on the high pressure side (see Worksheet 7)



Low pressure and high pressure manometers show the same value.

- Defective compressor (see Worksheet 9)
- One possible cause of error is improper alignment of the pulleys (see installation instructions), the drive belt slips
- The compressor magnetic coupling slips or is defective (see Worksheet 5)
- Defective compressor (see Worksheet 9)
- (V) Defective suction pressure regulator on the compressor (see Worksheet 4)

STEP 3

BASE TABLE B – THE AIR CONDITIONING SYSTEM PRODUCES AN INAPPROPRIATE NOISE

NOTE!

Noises heard when the air conditioning system is switched on are not necessarily a sign of a fault. However, if the noise remains after a few minutes, check whether one of the following reasons is causing an operating fault and test the proposed solution.

Cause	Solution
The V-belt is slipping or worn.	Check that the belt is sufficiently tensioned and that it is positioned straight on the pulley.
The ball bearing in the belt tensioner causes noise.	Replace the bearing.
Compressor magnetic coupling slips.	Check the distance between the belt pulley and the drive plate. It must be configured to between 0.4-0.6 mm (refer also to "Technical documentation for AC systems in vehicles").
Vibration noise from the compressor base.	Check that all nuts and bolts are properly tightened. Check that the belt pulley is even (see installation instructions).
The expansion valve "makes noise".	If the noise continues: Replace the valve (see Worksheet 3).
Noises from the drain hose for the condensate.	Equip the drain hose for condensate with a "check valve". In this way the condensate is lead out and is not sucked return, which would otherwise cause a gurgling sound.

IMPORTANT



In the following circumstances, malfunctions cause abnormal suction and high pressure on some of the air conditioner's components. This phenomenon causes noise at the compressor, which is not caused by the compressor. The following reasons cause the noise.

Cause	Solution
The refrigerant volume is not correct (30 – 35% too much or 70 – 75% too little).	See Worksheet 2.
The expansion valve is closed, blocked or clogged	See Worksheet 3.
The compressor's suction pressure regulator is defective (only for compressors with a suction pressure regulator (V)).	See Worksheet 4.
Stoppage in the air conditioner system's refrigerant circuit.	See Worksheet 7.
The filter is saturated with moisture.	See Worksheet 2.

NOTE!

If the noise continues, despite inspection and possible rectification of the possible causes listed above, contact WAECO's technical service department.

STEP 3

BASE TABLE C – THE AIR CONDITIONING SYSTEM PRODUCES AN ODOUR.

Cause	Solution
<p>Under specific conditions, bacteria can form on the surface of the evaporators and cause an “unpleasant odour” inside the vehicle.</p>	<p>Treat the evaporator with any of WAECO’s cleaning products, such as Refresh-o-mat.</p>
	<p>Recommendation for customers: Turn off the air conditioner for a few minutes before the vehicle is stopped. Allow the compartment ventilation to run for a few minutes (which will dry the evaporator, which is otherwise a breeding ground for bacteria).</p>
	<p>If the “unpleasant odour” continues to persist after implementation of the above steps, contact WAECO’s technical service department.</p>



Did you know ...

... it is important to change the dryer when the system has been opened

STEP 4

WORKSHEET 1

FOR HIGH CONDENSER PRESSURE

Cause	Solution
Insufficient air flow caused by the accumulation of dirt on the condenser or radiator (probably only after about 25 – 30,000 km).	Cleaning of the radiator and condenser.
The pressure switch and the temperature switch are not engaged at the relevant pressure and temperature values.	Control of the contact points on the pressure switch and thermostat. If necessary, replace the defective component (refer also to "Technical documentation for AC systems in vehicles").
The switch for the radiator fan is not working.	Power supply directly to the electric fan. If the fan does not work, replace it.
Fault in the functioning of the electric fan. (Wrong direction of rotation.)	The electric fan should operate in such a manner that it sends air into the engine compartment.
Overheating of the cooling water.	Check the vehicle's own cooling system.
Improper condenser installation.	Check if the distance between the radiator and the condenser is about 15 – 20 mm and that the air hose, where relevant (see the assembly instructions), is correctly positioned (see also "Technical documentation for AC systems in vehicles").

WORKSHEET 2

INCORRECT REFRIGERANT VOLUME – INAPPROPRIATE GAS, NON-CONDENSIBLE GAS OR MOISTURE IN THE SYSTEM.

Cause	Solution
<p>Improper refrigerant volume, 30 – 35% too much or 70 – 75% too little filling quantity.</p> <p>Note When correcting filling quantity, it is not necessary to replace the air conditioner's drying unit.</p>	<p>Extraction of refrigerant from the air conditioning system.</p>
<p>The evacuation time is not sufficient.</p>	<p>Replace the desiccant container.</p>
<p>Contaminated refrigerant.</p>	<p>Removal of the non-condensable gas and moisture in the air conditioning system, which means that the vacuum pump is kept running for at least 30 minutes.</p>
<p>The filter is saturated with moisture.</p>	<p>Checking the vacuum sealing using a drying manometer (see "User instructions for the waste station" for details).</p>
	<p>New filling of the air conditioning system with the recommended refrigerant. The amount of oil sucked out must be replenished again (refer to the assembly instructions or the table of refrigerant quantities).</p>

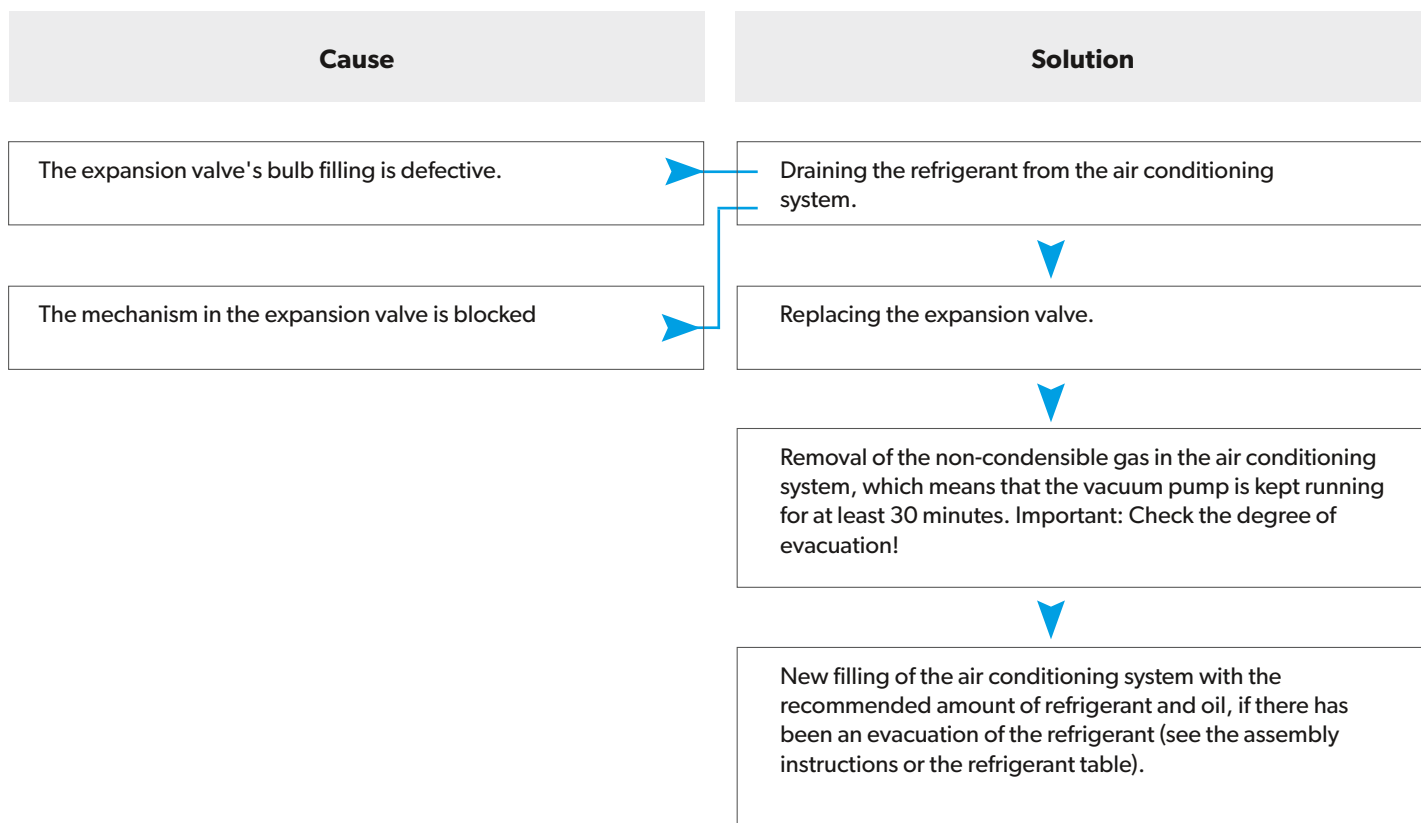
WORKSHEET 3

THE EXPANSION VALVE IS DEFECTIVE

NOTE: The expansion valves bulb is always installed on the evaporator's outlet tube (suction pipe) (1/2" pipe). On expansion valves with external pressure equalization, the following test must be performed while the system is running:

- Allow the temperature sensor to cool. You should be able to note a reduction in the high and low pressure.
- Allow the temperature sensor to warm up. You should be able to note an increase in the high and low pressure.

If the expansion valve does not respond to the load described, there is a fault. Check the expansion valve further in the manner described below.



WORKSHEET 4

THE COMPRESSOR'S SUCTION PRESSURE REGULATOR IS DEFECTIVE

Cause	Solution
The valve is blocked because of dirt (the evaporator has a tendency to icing).	Draining the refrigerant in the air conditioning system.
The spring in the compressor's control valve is defective.	Replace the control valve, which is located in the rear section of the compressor.
	Removal of the non-condensable gas in the air conditioning system, which means that the vacuum pump is kept running for at least 30 minutes. Important: Check the degree of evacuation!
	New filling of the air conditioning system with the recommended refrigerant. The amount of oil sucked out must be replenished again (refer to the assembly instructions or the table of refrigerant quantities).



Did you know ...

... the cabin filter has influence on the cooling capacity?

WORKSHEET 5

THE COMPRESSOR'S MAGNETIC COUPLING „SLIPS” OR DOES NOT ENGAGE

Cause	Solution
For a small amount of refrigerant.	Checks regarding leaks in the cooling circuit (see Worksheet 2).
Interruption of the power supply to the compressor magnetic coupling.	Remove the power cable to the magnetic coupling. Connect it directly to the vehicle's battery using a 7.5A fuse.
Incorrectly configured clearance on the compressor's magnetic coupling.	If the magnetic coupling does not engage, it must be replaced. If the magnetic coupling engages, check the functioning of the following components: Pressure switch, thermostat, the air conditioner's switch, electrical connections (see also "Technical documentation for the AC installations in vehicles".) The magnetic coupling's clearance must be configured between 0.4 – 0.6 mm (see also "Technical documentation for AC installations in vehicles").




Did you know ...

... that you must never pressure test at more than 12 bar?

WORKSHEET 6

THE HIGH AND LOW PRESSURE LINES ON THE COMPRESSOR ARE REVERSED

Cause	Solution
Error with connection of the refrigerant lines to the compressor. 	Check if the suction pipe (1/2") is connected to "SUC" on the compressor and the high pressure line (13/32") on "DIS" on the compressor.
	If the above lines are reversed, perform an evacuation of the refrigerant from the air conditioner.
	Correct connection of the refrigerant lines on the compressor.
	Removal of the non-condensable gas in the air conditioning system, which means that the vacuum pump is kept running for at least 30 minutes. Important: check the degree of evacuation!
	New filling of the air conditioning system with the recommended refrigerant. The amount of oil sucked out must be replenished again (refer to the assembly instructions or the table of refrigerant quantities).

NOTE!

If the air conditioning system is equipped with a compressor with constant displacement (F), it shall be possible to determine that the compressor only connects on rare occasions and for a few seconds. If the air conditioning system is equipped with a compressor with a suction pressure regulator (V), it shall be possible to determine that the compressor is switched rapidly on and off.

WORKSHEET 7

STOPPAGE IN THE AIR CONDITIONER SYSTEM'S REFRIGERANT CIRCUIT.

Cause	Solution
Dirt or twisting causes a stoppage in the refrigerant circuit.	<p data-bbox="805 571 1501 694">Locating the stoppage by looking for an abnormal temperature change along the refrigerant circuit (warm on front of the stoppage, cold after the stoppage).</p> <p data-bbox="805 750 1501 840">Draining the refrigerant from the air conditioning system.</p> <p data-bbox="805 896 1501 985">Replacing the clogged component.</p> <p data-bbox="805 1041 1501 1131">Checking the refrigerant circuit regarding several dirt accumulations.</p> <p data-bbox="805 1187 1501 1377">Removal of the non-condensable gas in the air conditioning system, which means that the vacuum pump is kept running for at least 30 minutes. Important: check the degree of evacuation!</p> <p data-bbox="805 1433 1501 1599">New filling of the air conditioning system with the recommended refrigerant. The amount of oil sucked out must be replenished again (refer to the assembly instructions or the table of refrigerant quantities).</p>



Did you know ...

... that you should never recycle a pressureless air-conditioner, but always test it with nitrogen before filling?
See page 64

WORKSHEET 8

ICE FORMATION ON THE EVAPORATOR

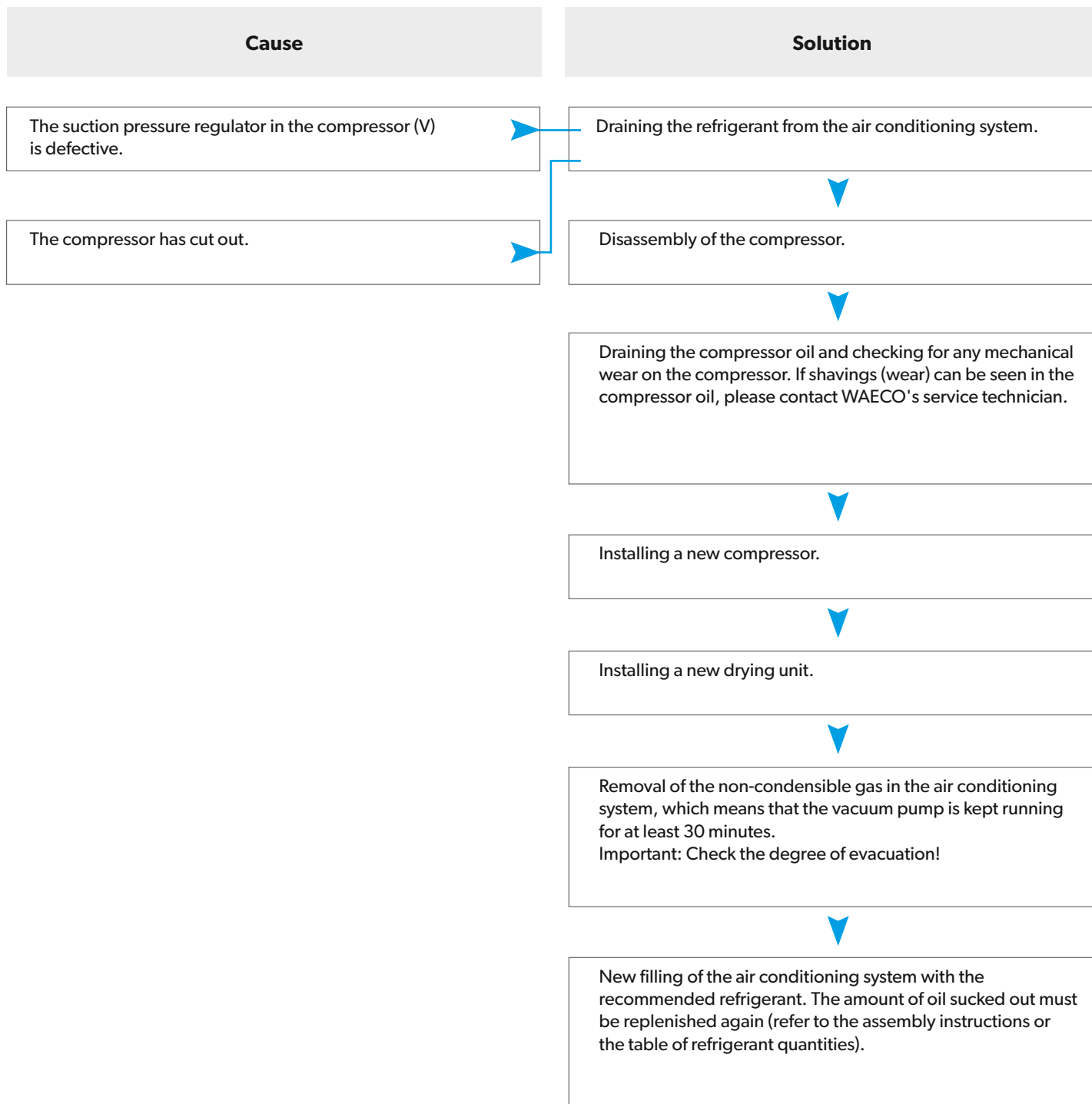
Cause	Solution
Malfunction of the thermostat or icing protection probe (if one has been installed).	Check whether electrical connections on the thermostat or the icing protection probe is correct and whether the bulb is firmly touching the evaporator coil. If necessary, replace the component (see also "Technical documentation for AC installations in vehicles").
Malfunction of the compartment ventilation fan.	When the air conditioner is turned on, at least the first fan level must be active. Checking the compartment ventilation fan's electrical connection (see wiring diagram).
The compressor's suction pressure regulator is defective (only for compressors with adjustable displacement (V)).	Functional check of the control valve for displacement (see Worksheet 4 and "Technical documentation for AC systems in vehicles"). If the pressure control valve is defective, replace the component.

NOTE!

When the air conditioning system has been in operation for a few minutes, it is already possible to notice a significant reduction in the air flow at the air intake grille.

WORKSHEET 9

DEFECTIVE COMPRESSOR



WORKSHEET 10

PENETRATION OF WARM AIR INTO THE COMPARTMENT. INFLOW OF HOT WATER INTO THE HEATING SYSTEM.

Cause	Solution
The heating system's water valve (if any) does not close properly.	Verification of the arm and/or position motor on the heating ventilation box. If necessary, switch off the power supply to the vehicle's heating system.
The damper for air mixture (heating air damper) and/or the damper system for the recirculation air does not close properly.	Verification of the arm and/or position motor on the heating ventilation box. Checking the damper system for the circulation air.
Poor insulation of the transitions to the air distributor box or the open air.	Checking the transitions between the evaporator and the air distributor box regarding tightness, which means that hot air cannot penetrate in from the outside.



Did you know ...

... it is important to adapt the oil amount when repairing the system?

LOW-PRESSURE

HIGH

- The suction and pressure side on the compressor are reversed (see Worksheet 6)
- The compressor's magnetic coupling slips or does not engage (Sheet 5)
- The open expansion valve is blocked (Worksheet 3).
If the compressor has a suction pressure regulator, small but rapid pressure fluctuations occur on the low pressure side
- (V) The suction pressure regulator functions incorrectly or is defective (Worksheet 4)
- Defective compressor (Worksheet 9)

LOW

- (F) The thermostat is defective (Worksheet 8)
- (F) The closed expansion valve is blocked or clogged (Worksheet 3)
- The drying filter is saturated with moisture (Worksheet 2)
- (V) The suction pressure regulator is blocked at maximum capacity (Worksheet 4)
- (F) Stoppage in the air conditioner's LP or HP area (Worksheet 7)

HIGH-PRESSURE

HIGH

- Normal situation with very high ambient temperature ($> 43^{\circ}\text{C}$)
- Excessive quantity of refrigerant, 30-35 % excess refrigerant (Worksheet 2)
- Error with heat exchange in the condenser (Worksheet 1)
- Gases that are difficult to condense in the air conditioning system (Worksheet 2)
- (V) The compressor's suction pressure regulator is defective (Worksheet 4)
- Stoppage in the air conditioner's HP area, between compressor and condenser, condenser and filter, but after the high-pressure connection

LOW

- Normal situation with very low ambient temperature ($< 5^{\circ}\text{C}$)
- Insufficient quantity of refrigerant, 70 – 75% too little refrigerant. Possible refrigerant loss (Worksheet 2)
- (V) The closed expansion valve is blocked or clogged (Worksheet 3)
- (F) Stoppage on the LP or HP side between the filter and evaporator (Worksheet 7)
- Defective compressor (Worksheet 9)

LOW PRESSURE OR HIGH PRESSURE

NORMAL

- Inflow of warm air to the interior of the evaporator group or the passenger compartment (Worksheet 10)
- Icing in the evaporator (Worksheet 8)

EVEN

- The compressor drive belt slips. One possible reason could be a displacement of the uniform direction on the belt pulleys (see installation instructions).
- The compressor's magnetic coupling slips or does not engage (Sheet 5)
- Damaged compressor (Worksheet 9) (V) The compressor's suction pressure regulator is defective (Worksheet 4)

GENERAL ASSEMBLY INSTRUCTIONS

CHECKS THAT MUST BE CARRIED OUT BEFORE ASSEMBLY

Since the AC system works in conjunction with the car's various parts, the following settings and functions must be checked before installation:

1. The idle speed must be the preconfigured speed
2. The output voltage from the generator must be 14-15 V
3. The heater fan must perform flawlessly in all operating modes
4. The heating valves must function flawlessly
5. All electrically operated components in the car must be checked to ensure that they are functioning properly

Any errors or discrepancies must be corrected before the work begins.

COMPRESSOR OIL

Note! Only synthetic oil may be used with R134a refrigerant, never mineral oil.

Most compressors are already filled up with the correct quantity from the beginning. Check the oil level during maintenance and repair and replenish if necessary.

INSTALLATION OF AC SPARE PARTS

- Before fitting the component, check that all connectors, fasteners and other details are the same as on the part to be replaced
- When the hoses and connections are loosened, they must be immediately sealed with protective caps or similar so that moisture or dust cannot enter the AC system. The spare part's protection should be removed just before installation.
- When connections are tightened or loosened, two wrenches should always be used so the hoses are not twisted around
- Before assembly, ensure that the O-ring is properly in place
- O-rings may not be reused
- Drip some compressor oil on the O-ring before connecting the refrigerant hose
- All O-ring connections should be tightened with a torque wrench because excessive force can damage the seal and cause leaks
- Lay electrical wiring, refrigerant tubing and other tubes such that they are at least 15 mm from rotating parts, 150 mm from parts that become very hot, 20 mm from the ignition system's wires and 20 mm from the fuel lines
- Attach the cables with cable ties or similar
- Route all cables ensuring that they cannot be damaged by sharp edges
- Push all contacts firmly so that they sit securely in place
- Protect connections that may be splashed with water (e.g. in the engine compartment) with protective spray, insulation tape or similar

O-ring couplings: sizes	Maximum values (in Nm) for O-ring couplings
5/8" (6)	15.4 – 17
3/4" (8)	15.4 – 17
7/8" (10)	24.4 – 27

TURN ON THE AC SYSTEM

(The AC system must be filled up)

- Rotate the compressor five revolutions by hand to distribute the oil in it
- Start the engine, let it idle and turn the AC system quickly on and off a few times
- Turn on the AC system and let the engine idle for a few minutes

FUNCTIONAL TEST FOR AC SYSTEMS WITH NON-VARIABLE COMPRESSORS

(e.g. Sanden, Seiko-Seiki)

CHECK THE THERMOSTAT:

Turn on the AC system and let it run for a few minutes with maximum cooling effect so that the ventilation system cools down. Configuration must occur at a speed of approx. 2500 rpm and with the fans in the lowest position 1: configure the thermostat so that the air temperature in the middle exhaust valve is approx. 6 °C. Important! Make sure the sensor is securely attached in the evaporator and has good surface contact.

CHECK THE PRESSURE IN THE AC SYSTEM:

Approximate values at a speed of 2500 rpm and the fan in position 1: the low pressure side 0.5 – 1.5 bar, the high pressure side 10 – 15 bar.

FUNCTIONAL TEST FOR AC SYSTEM WITH VARIABLE COMPRESSORS

(e.g. Harrison)

Vehicles with variable compressors have no thermostat. The suction pressure in the system for such vehicles is regulated automatically and is always 2 bar.

GENERAL CHECKS OF THE AC SYSTEM

- Check that the condenser fan is working flawlessly and that it rotates in the right direction
- Check that the pressure switch/trinary switch works. (On/off switch for the condenser fans. "On" at approx. 15 bar, "Off" at approx. 13 bar).
- Check that the recirculation cover works flawlessly
- Check that the car's ventilation system works flawlessly
- Check other equipment, if available (e.g. heating faucet or valve for vacuum regulator)
- Check that the idle boost functions, if this function is available
- Check that the protective circuit works (the compartment ventilation fan must either be on for the AC system to be able to start, or start automatically when the AC system is turned on)
- Check that the drain hose for condensed water is correctly installed and is operating flawlessly
- Check all parts of the AC system, ensure that everything is installed correctly and the components are securely in place and that there are no leaks.



IS R 1234yf DANGEROUS?

R 1234yf can be flammable when it is present in certain quantities and comes in contact with oxygen. Therefore, keep the A/C service unit away from open flames or other sources of ignition in case of damage. The refrigerant itself is nontoxic. However, like any other gas, it replaces the oxygen needed for breathing. Should

refrigerant escape, keep your calm, leave the building and make sure there is sufficient supply of fresh air. As usual, you should wear suitable protective clothing and equipment (goggles and gloves) when dealing with refrigerant. These are included with each service station.

WHAT ARE THE THINGS TO DO DURING INITIAL START-UP?

During the operator training our technician will, among other things, make you familiar with the following issues:

- Switch the unit on and let it start up. Do not connect the service station to a bottle of fresh refrigerant at the start! This would cause error messages during the software test and the leak check. During the initial start-up the display will occasionally show Error Code 12, which means there is no refrigerant in the internal tank. Quit this error message by pressing the STOP button.
- Open the lid of the oil compartment on the left-hand side of the unit and hook all three oil bottles in place.
- There are two different sizes of oil bottles, 250 ml (open plastic containers) and 500 ml (professional oil system, closed metal containers). As the containers will be included in the weighing, it is important to set the right bottle size on the service unit. This is

because the two differently sized containers have different empty weights and capacities. The factory setting is 250 ml.

If you want to use large bottles, please use the arrow keys to go to "Other menus" > press ENTER > then go down right to the bottom to "Service" > press ENTER > key in Code 2688, and select 500 ml. To get back to the basic menu press the STOP button several times.

- The pressure sensor should be calibrated, especially if the service station is used at a higher altitude above sea level where the atmospheric pressure is lower. To calibrate the sensor use the arrow keys to go to "Other menus" > press ENTER > then go down right to the bottom to "Service" > press ENTER > key in Code 2224, and follow the instructions on the display. For balancing the unit with the atmospheric pressure, the service couplers have to be unscrewed and removed from the hoses, so that you can look into the hoses.

THE SERVICE UNIT ONLY BEEPS, BUT THE DISPLAY STAYS DARK – WHAT DOES THIS MEAN?

The safety concept takes care that the service station can only be put into operation when it is closed all around and fresh air from the blower is flowing through it. This is why the front cover and the rear cover of the drier filter are fitted with contact switches, which are activated when the lids are opened. Simultaneously, the system

monitors the blower speeds of the rear housing fan and the vacuum pump fan on the side of the unit. If the housing is opened, or if one of the fans fails, the voltage supply to the unit is automatically interrupted and an alarm sounds from the external box on the rear.

WHY DOES IT TAKE MORE THAN HALF A MINUTE BEFORE THE DISPLAY COMES ON AFTER I HAVE ACTIVATED THE MAIN SWITCH?

For safety reasons, the unit, after having been switched on, is flooded through with fresh air for 35 seconds before voltage is passed on to the system. Should a flammable mixture have formed

anywhere in the housing – which may have been caused by a leak for example – this precaution makes sure the mixture won't be ignited by an electric spark.

WHY DOES IT TAKE SO LONG FOR THE A/C SERVICE UNIT TO DO THE “SOFTWARE TEST”?

During the software test almost all possible operations of the unit are subjected to a test run. At the same time all components are preheated to get them to their ideal working temperature. This will, among other things, improve the charging and recovery accuracy of the machine. Additionally, the system performs a daily internal

leak check whereby several components and connecting pipes are checked for tightness, first using vacuum, then with refrigerant. If pressure drops are detected in the process the unit won't start operation.

WHY DOES THE UNIT DISPLAY ERROR CODE 12 DURING THE INITIAL START-UP?

Our A/C service units are supplied without refrigerant. Error Code 12 means that there is too little pressure (i.e. refrigerant) in the unit to perform the daily leak check and the subsequent software test. Please fill up the internal tank with refrigerant. To do this connect a bottle of fresh refrigerant (shake before use), select “Other menus” using the arrow keys and confirm with ENTER, then select “Int. bottle filling”, press the ENTER button and key in the desired quantity of refrigerant.

Note: The ASC 5500RPA fills refrigerant by pressure difference. It is therefore technically impossible to charge 500 g of refrigerant into an A/C system if the service unit contains only 500 g of refrigerant. The more refrigerant is contained in the internal tank the faster and easier the charging process will go. We recommend a minimum quantity of 5 kg to be contained in the unit.

HOW MUCH REFRIGERANT SHOULD I CHARGE INTO THE INTERNAL TANK?

The ASC fills refrigerant by pressure difference. It is therefore technically impossible to charge 500 g of refrigerant into an A/C system if the service unit contains only 500 g of refrigerant.

The more refrigerant is contained in the internal tank the faster and easier the charging process will go. We recommend a minimum quantity of 5 kg to be contained in the unit.

CAN I ACCIDENTALLY CONFUSE R 134A A/C SYSTEMS WITH R 1234yf A/C SYSTEMS?

The A/C systems have different connection ports. R134a service couplers won't fit R1234yf service ports and vice versa. Likewise, it

is impossible to connect an R134a service coupler to R1234yf service hoses, etc.

WHAT DO I HAVE TO DO IF I HAVE RECOVERED WRONG REFRIGERANT (E.G. R 134a)?

The ASC features an integrated refrigerant analysis module, which checks the purity of the existing refrigerant prior to every recovery

process. If the purity is below 95%, the service unit will refuse acceptance.

WHAT DO I HAVE TO DO IF THE ANALYSIS FAILS?

To prevent measuring errors the analysis can be repeated up to three times. If the analysis keeps reporting failure, the connected A/C system does not contain pure refrigerant. The refrigerant must be disposed of. For the purpose, the ASC 5500RPA has a connection on the rear to which you can connect a separately

available disposal system. Once the disposal is complete you can do a cross check by connecting a bottle of fresh refrigerant (shake before use) to the service station and repeat the original process. The analysis should read "OK" now.

WHY DOES THE REFRIGERANT CHARGING PROCESS TAKE SO LONG?

According to the risk analysis of the German TÜV the service unit may only be used for charging A/C systems that have no leaks. To meet this requirement the A/C system is first put under vacuum (negative pressure) and checked for pressure changes for a certain period of time. Then a little amount of refrigerant is added to generate positive pressure, and the system is again monitored at a constant pressure level. If the pressure rises or falls in either of the two phases you will know that the A/C system leaks. In that case

the service unit will interrupt the process and display an error message.

To guarantee accurate charging at all times it is then necessary to recover the pre-charged amount of refrigerant and completely evacuate the A/C system before. Once this has been done you can go ahead and charge the required amount of refrigerant.

HOW DO I SET ANOTHER LANGUAGE?

The service units are set to English in the factory settings. To set another language simply use the arrow keys to go up/down to menu item "Other Selections" and confirm with ENTER to access the next menu. Then use the arrow keys to go down right to the

bottom to "Service", again confirm with ENTER and key in the code 5264. You can select the desired language with the arrow keys and confirm with ENTER. By pressing the STOP button several times you get back to the basic menu.

WHO IS THE PERSON TO CONTACT IF I HAVE FURTHER QUESTIONS?

Simply select your country to see the responsible Dometic Sales Company including the corresponding contact information.

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