

AIR CONDITIONING WORKSHOP EQUIPMENT

2016



A/C SERVICE UNITS AND ACCESSORIES FOR R 134A AND R 1234YF



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.





PROFESSIONAL STANDARD: THE ASC SERVICE UNIT GENERATION

ASC by WAECO is, and has been for years, the abbreviation for excellent quality and cutting-edge technology in A/C service equipment. The series is constantly improved and complemented to meet future requirements. All ASC service units are state of the art and fully automatic.

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WHAT WAECO AIRCONSERVICE OFFERS

Products certified by major vehicle manufacturers

Original replacement parts

Universal components

Components for special A/C applications

A/C workshop equipment

Consumables

Technical advice and support

Tailor-made training concepts

Proof of competence according to the German
Chemicals Climate Protection Ordinance

A/C service units and consumables for
the new R 1234yf refrigerant

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.



ASC 2500 G Low Emission
Environment and efficiency

More details pages 10 – 11



ASC 1000 G
Universal entry-level model

More details pages 12 – 13



ASC 2000 G
Classic model for professionals

More details pages 14 – 15

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.



Volkswagen Group
VAS 6746 A

BMW
BMW 2500



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.



ASC 2000RPA

Designed for extra safety with additional gas analysis function

More details pages 16 – 17



ASC 3000 G

High-volume version for large refrigerant amounts

More details pages 18 – 19



ASC 5000 G / ASC 5500RPA

Safe maintenance of air conditioners with R 1234yf refrigerant

More details pages 22 – 25

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 German 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.
- Refrigerant recovery must be made and displayed with an accuracy of +/- 30 g.

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 Germany	●	●	●	●
Jaguar	●	●	●	●
Landrover	●	●	●	●
Aston Martin	●	●	●	●
Mazda	●	●	●	●
Hyundai	●	-	-	-
Opel / GM Europe	●	●	-	-
MAN	●	●	-	●
DAF	●	●	-	●
Scania	●	●	●	●

In some cases only local approvals/recommendations

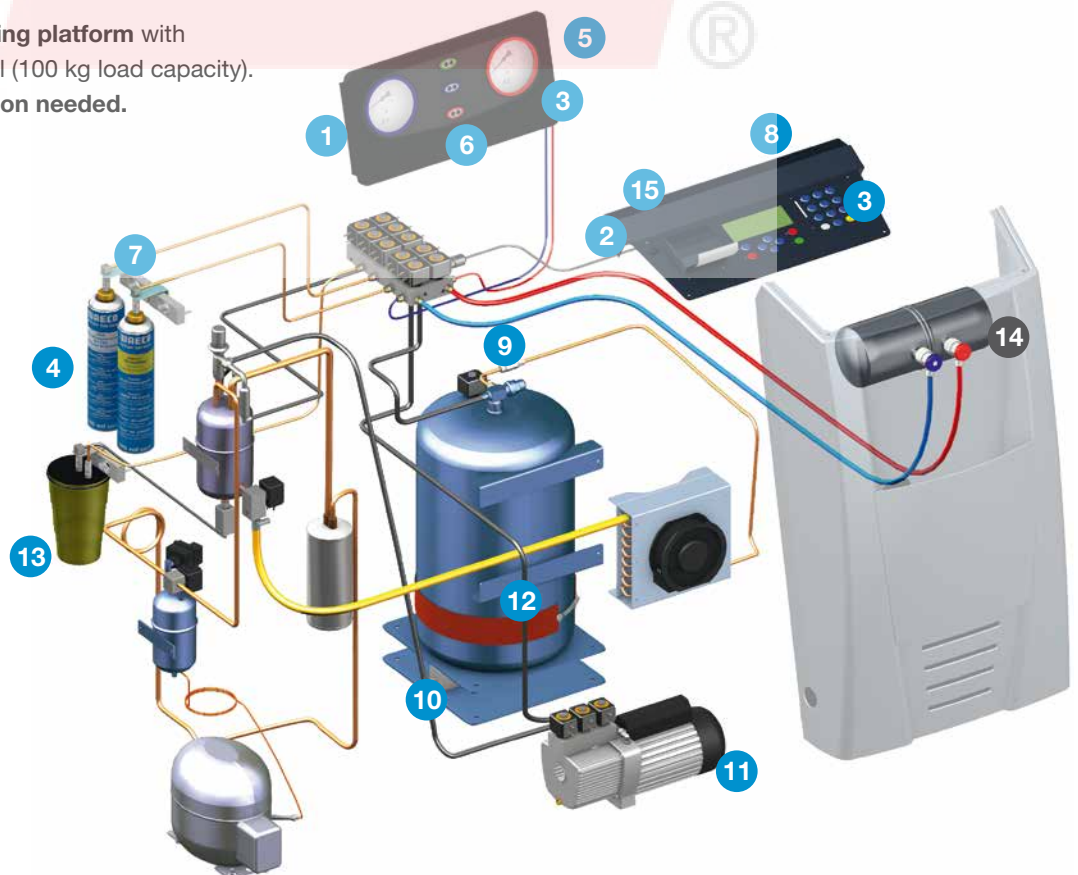
”ENGINEERED IN GERMANY“

ASC 2500 G LOW EMISSION FEATURES

ASC service stations are perfectly geared to the needs of daily workshop routine. Easy to use and maintain, they work fully automatic – no need to keep a constant eye on them. Add to this the convincing cost/benefit ratio and you'll agree that all the conditions for profitable A/C service are met. Approvals from automotive manufacturers are a recommendation in itself.

The ASC 2500 G Low Emission offers the following distinctive features:

- 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 membrane keypad** for reliable data entry
- 4 Patented, professional feeding system** for fresh oil and UV additive
- 5 Illuminated manometer** with 100 mm diameter
- 6 High-contrast LED display** for process supervision from a long distance
- 7 3 separate weighing cells** for oil management (used oil / fresh oil / UV additive) are a distinctive feature of the fully automatic unit
- 8 Large display** for easy readability and reliable data entry
- 9 Refrigerant tank** with preassembled condenser and fan for accurate indication of the recovered amount of refrigerant
- 10 Special, 8-bearing weighing platform** with high-capacity weighing cell (100 kg load capacity).
User friendly: no calibration needed.
- 11 Service-friendly low-emission vacuum pump** with 60-hour oil change interval
- 12 Increased pressure due to heating band on the refrigerant tank**, for complete charging of the A/C system even at high ambient temperature
- 13 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.
- 14 Optional accessory: flushing kit for the internal circuit of the ASC.** Especially recommendable where the ASC is also used on Asian-make hybrid vehicles.
- 15 USB interface included as standard on all ASC G-series A/C service units:** convenient software and database updates by USB stick.



LOW LIFECYCLE COSTS

ASC – THE MOST PROFITABLE SOLUTION

You certainly know the tale about those “super-low-cost” printers where the cartridge will in the end cost you more than the unit did. When considering the investment in an A/C service unit you will naturally have an eye on the costs – upcoming maintenance costs included. This is where fully automatic ASC A/C service units offer many plus factors: low costs for spares and consumables, considerably longer service and maintenance intervals, plus a full 24 months of warranty coverage! Projected to the entire lifecycle of an A/C service unit (8 years and beyond), ASC-series units are a very profitable choice.

Maintenance-friendly vacuum pump



Oil change only after every 60 operating hours, service due is automatically indicated on the unit's display.

High-capacity filter drier



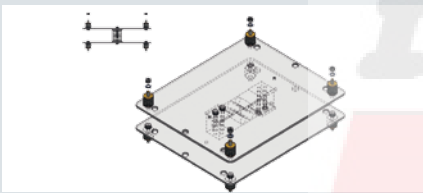
Oil needs to be replaced after every 150 kg of recovered refrigerant, service due is automatically indicated on the unit's display.

Valve block



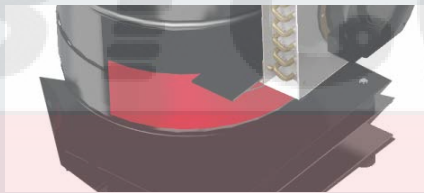
Fully electronic control of all processes reduces service times, improves accuracy and reduces the risk of operating errors.

High-capacity, vibration cushioned weighing cell



All refrigerant carrying components are placed on the main scales, which prevents measuring errors and thus saves time.

Heating tape



Heating tape increases the pressure on the refrigerant tank; for complete charging of the A/C system even when ambient temperature are high and the engine is hot.

Patented feeding system



Patented feeding system for fresh oil and UV additive. Economical use thanks to accurate measurement of oil and UV additive by means of electronic weighing cells.

PATENTED FEEDING SYSTEM FOR FRESH OIL AND UV ADDITIVE

Plastic containers let moisture in, which may lead to acid or ice formation in the A/C system. With this patented system, this is all different: fresh oil and UV additive are stored moisture-free in aluminium laminated bags contained in a protective metal cylinder. Using our professional oil system you prevent the penetration of moisture and potentially resulting blockage of valves. Many approvals by automotive manufacturers prove this point.

Included as standard with models ASC 1000 G, ASC 2000 G, ASC 2500 G, ASC 2000RPA and ASC 3000 G.



ASC BENEFITS AT A GLANCE

1

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 control valves.

2

PATENTED 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.

3

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!

4

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).

5

ALSO SUITABLE FOR MODERN-DAY HYBRID VEHICLES

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



6

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.

7

CUSTOMISED FLUSHING PROCESS AND FLUSH BOTTLE (optional)

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

8

TÜV-APPROVED REFRIGERANT PURITY

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

9

PROTECTED ACCESS WITH INDIVIDUAL USER CODES

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

10

OPERATIONAL SOFTWARE IN MORE THAN 20 LANGUAGES

DE, EN, FR, IT, SR, HR, SI, TR, NL, DA, NO, SV, PT, GL, CA, ES, EU, FI, ET, CS, RO, PL, HU, RU, ZH

11

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).

12

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.

13

USER-FRIENDLY DISPLAY UNITS

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

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).

Please note that the sustainable and economical use of R 134a will be an issue of growing importance in the future! The EU directive about the shortage of available R 134a resources has already been in force since 1st January 2015.

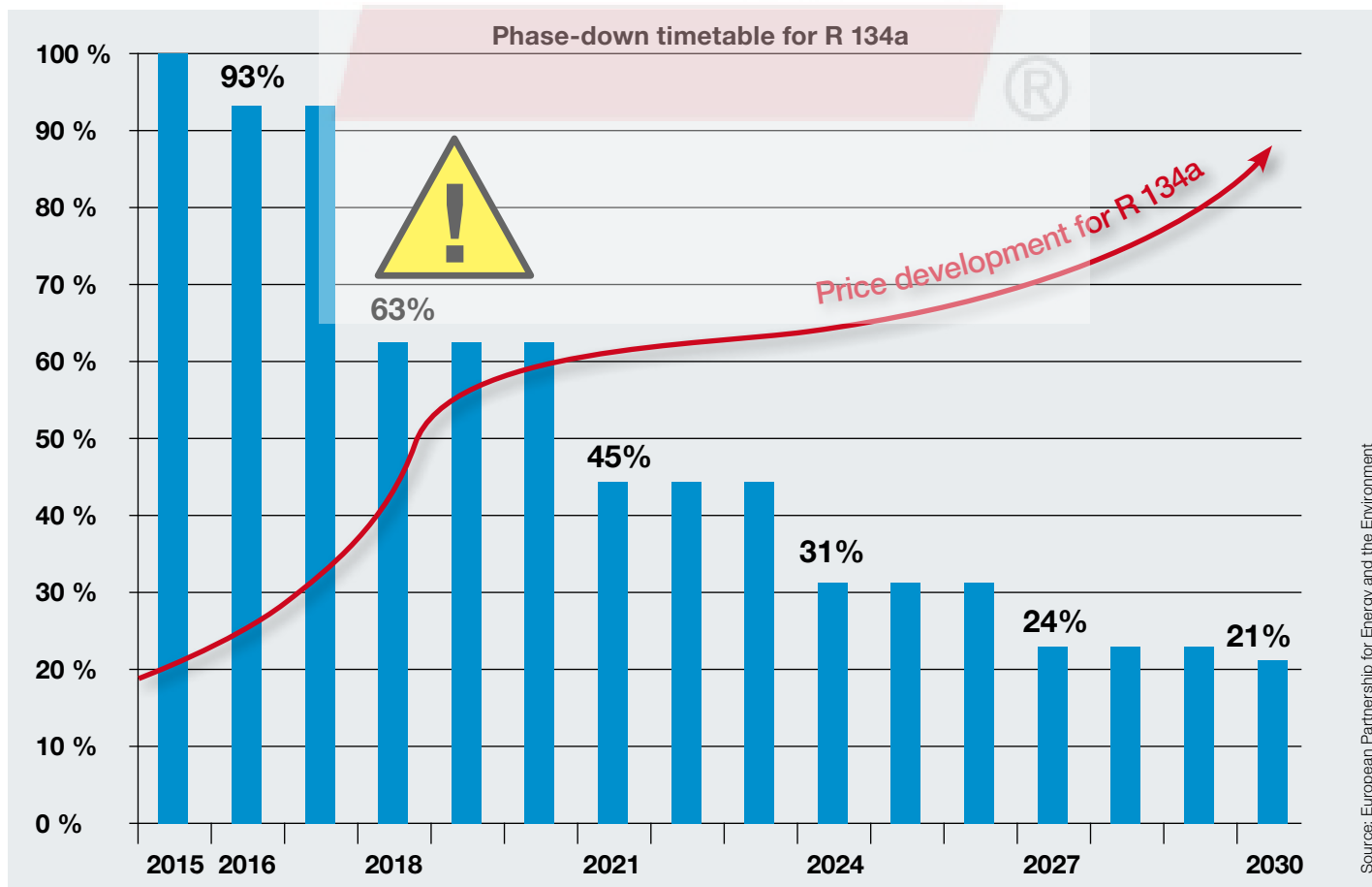
THE NEW EU F-GAS REGULATION

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 truly 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.

Phase-down timetable for R 134a

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



Source: European Partnership for Energy and the Environment

ASC 2500 G LOW EMISSION

- Sturdy metal housing
- Charging cylinder storage capacity: 16 kg, vacuum pump capacity: 5 cars/h
- Patented 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
- Personalised charging amount database
- Operator guidance via large display and illuminated manometer
- 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 German-make hybrid vehicles
- Service on Asian-make hybrid vehicles is possible if the optional flushing kit for the ASC's internal circuit was installed (see page 54)
- Patented used oil container
- **USB interface**
- **Soft graphic display**



ASC 2500 G

Ref. No. 9103301844

Instruction package

Ref. No. 8889900001

Adapter for non-returnable bottles 1/4" HD

Ref. No. 8885400035



Our tip!

ALSO GREAT AS DIAGNOSIS TOOL

The ASC 2500 G Low Emission integrates all refrigerant bearing 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.



Well engineered:
Patented used oil container prevents unnecessary refrigerant loss



Practical:
Filter can be replaced from the outside



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



Safe and secure:
Accessory kit for service on hybrid vehicles



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.**

Contents, specifications and availability are subject to change due to the technical improvement. We are not liable for errors and printing mistakes.

ASC 1000 G – FULLY AUTOMATIC A/C SERVICE UNIT

- Sturdy metal housing
- Charging cylinder storage capacity: 10 kg, vacuum pump capacity: 4 cars/h
- Patented 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 German-make hybrid vehicles
- Suitable for Asian-make hybrid vehicles when optional flushing kit is installed (see page 54)
- **USB interface**
- **Soft graphic display**



ASC 1000 G

Ref. No. 9103301843

Instruction package

Ref. No. 8889900001

Adapter for non-returnable bottles 1/4" HD

Ref. No. 8885400035



Standard on ASC 1000 G units:
Patented feeding system for fresh oil and UV additive



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

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.



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



Rear side: filter is easy to access from the outside



With special software for A/C flushing to vehicle manufacturer's specifications

ASC 2000 G

WITH PATENTED 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

ASC 2000 G – FULLY AUTOMATIC A/C SERVICE UNIT

- Charging cylinder storage capacity: 21 kg, vacuum pump capacity: 5 cars/h
- Patented 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 German-make hybrid vehicles
- Suitable for Asian-make hybrid vehicles when optional flushing kit is installed (see page 54)
- **USB interface**
- **Soft graphic display**



ASC 2000 G

Ref. No. 9103301841

Instruction package

Ref. No. 8889900001

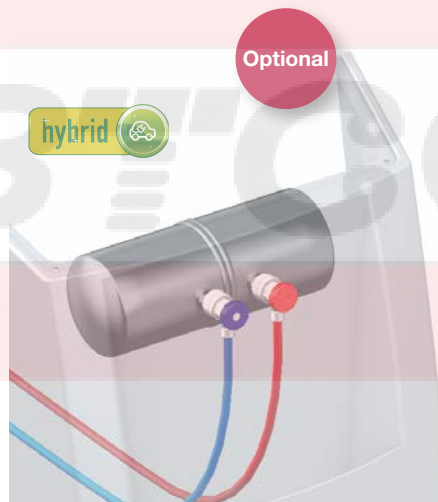
Adapter for non-returnable bottles 1/4" HD

Ref. No. 8885400035



Standard on ASC 2000 G units:

Patented feeding system for fresh oil and UV additive



Safe and secure:

Accessory kit for service on hybrid vehicles



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.
- **Built-in data printer:**
Measurements can be printed out as often as desired once the service process has been completed. The amount of recovered refrigerant can be blanked out if required.
- **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

- Sturdy metal housing
- Fully automatic gas analysis (R 134a, R 12, R 22, HC, air)
- Charging cylinder storage capacity: 21 kg, vacuum pump capacity: 5 cars/h
- Optional: patented 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



With automatic refrigerant analysis and fully automatic nitrogen leak check

ASC 2000RPA

Ref. No. 8885200087

Instruction package

Ref. No. 8889900001

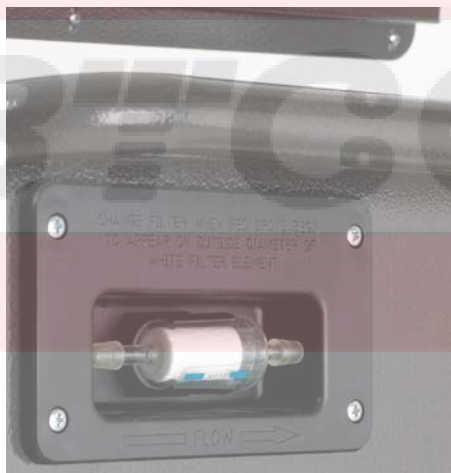
Adapter for non-returnable bottles 1/4" HD

Ref. No. 8885400035



Reliable:

Information displayed after refrigerant analysis



User-friendly:

Intake filter of the analysis unit is easy to access

MY BENEFITS

• Fully automatic testing of refrigerant purity:

The ASC2000RPA 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.



Fully automatic:

Nitrogen leak check



Optional:

Gas cylinder trolley



ASC 3000 G



HIGH-VOLUME AIRCON SERVICE CENTRE 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. 41) 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 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.

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.

Contents, specifications and availability are subject to change due to the technical improvement. We are not liable for errors and printing mistakes.

ASC 3000 G – FULLY AUTOMATIC A/C SERVICE UNIT

- **High capacity compressor**
- **Large vacuum pump: 192 l/min**
- 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: patented 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

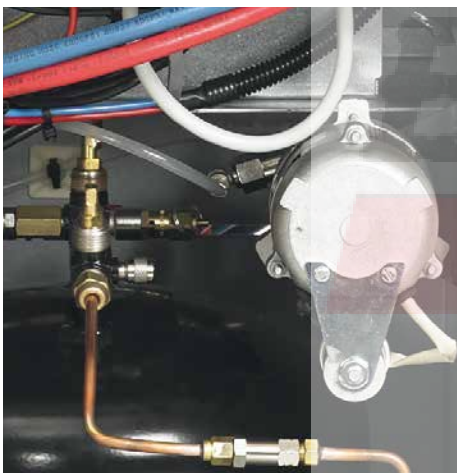
Ref. No. 9103301845

Instruction package

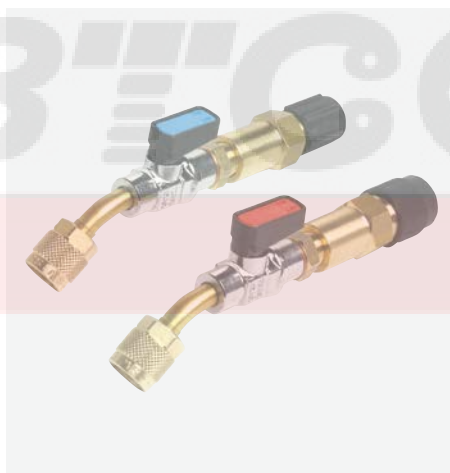
Ref. No. 8889900001

Adapter for non-returnable bottles 1/4" HD

Ref. No. 8885400035



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



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



ASC 3000 G:
The perfect choice for A/C service on buses, trains, helicopters and special applications



Optional:
Patented 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, patented 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.

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 33.

5 Integrated refrigerant analysis / safe and smooth process flow

R 1234yf 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.

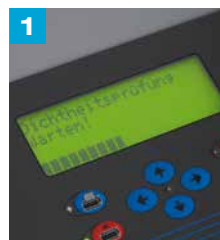
10 Get everything from one source

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



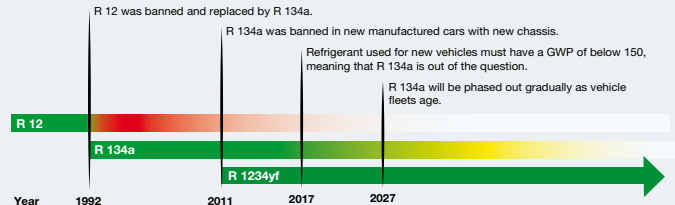
IS YOUR WORKSHOP READY FOR R 134A AND R 1234YF?

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. R134a will be banned in new cars manufactured 2017.



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

With the ASC 5500RPA Low Emission and the ASC 5000 G, Dometic WAECO offers two fully automatic units for service on R 1234yf A/C systems, both 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 (ASC 5500RPA) 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

4 Integrated fully automatic analysis module

Process safety through identification of the refrigerant purity; process stops when purity is less than 95%

5 Refrigerant tank with heating tape

Robust weighing system, no calibration required

6 Safety switch

Cuts off the power supply in case of improper opening of the service unit

8 Patented feeding system

Moisture-free storage of fresh oil and UV additive, savings through accurate dosing with electronic weighing cells

9 Oil separator

ensures the functioning of the maintenance-free analysis module

Optional:

Hybrid flush kit

7 Patented used oil container

Practical and safe with refrigerant recovery – prevents unnecessary refrigerant loss

ASC 5500RPA

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 UNIT APPROVALS/RECOMMENDATIONS FOR OUR ASC 5500RPA FOR R 1234YF

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

* in various countries

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		1.136,85 €

A/C service cost savings 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		12,72 €

Annual savings per year with low-emission concept 1.124,13 €

Annual savings in 8 years with low-emission concept 8.993,04 €

(Stand 2015)

ASC 5500RPA LOW EMISSION

- Sturdy metal housing
- Charging cylinder storage capacity: 16 kg, vacuum pump capacity: 5 cars/h
- Optional: patented 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 German-make hybrid vehicles
- Patented used oil container
- Including adapter for non-returnable bottles 1/4" HD



ASC 5500RPA

Ref. No. 8885200102

Instruction package

Ref. No. 8889900001



Practical:
Innovative used oil container with refrigerant return system



Coupler with clearance ventilation



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:**
Service couplers with clearance ventilation prevent refrigerant leakage.
- **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 5000 G – SERVICE UNIT FOR R 1234YF WITHOUT GAS IDENTIFIER

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 **simple basic version** of the ASC 5000 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 automatic, 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 5000 G can be aded with an external refrigerant analysis tool.

- Sturdy metal housing
- Charging cylinder storage capacity: 16 kg, vacuum pump capacity: 5 cars/h
- Optional: patented 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 German-make hybrid vehicles
- USB interface
- Soft graphic display
- Including adapter for refrigerant bottles

ASC 5000 G

Instruction package for A/C service units

Ref. No. 8885200104

Ref. No. 8889900001



Optional for all ASC 5000 G:
Patented feeding system for fresh oil and UV additive



Safe and secure:
electronic fan control



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

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 new 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.

External refrigerant analysis tools

R 1234yf

External R 1234yf gas analysis tool with USB connection

Complies with the specifications of the task force of German vehicle manufacturers

- For ASC 5000 / ASC 5000 G
- Reliable analysis with service coupler with clearance ventilation
- Easy handling
- **Not including printer**
- Simple indication of the refrigerant purity



Picture similar to product

Ref. No. 8885100106

External R 1234yf gas analysis SAE with USB connection

- For ASC 5000 / ASC 5000 G
- Analysis tool complies with SAE J 2912
- With USB connection
- **Including printer**
- **Indicates the specific gases on the display, e.g. R 1234yf, R 134a, R 22, HC and air**



Picture similar to product

Ref. No. 8885100107



AirCon Service Centre	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	–	–	–
Bottle of fresh PAG oil ND 12, 100 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
R 1234yf service hose for HP side (SAE standard), 3 m	–	–	–
R 1234yf service hose for LP side (SAE standard), 3 m	–	–	–
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

Contents, specifications and availability are subject to change due to the technical improvement. We are not liable for errors and printing mistakes.

ASC 2500 G Low Emission	ASC 3000 G	ASC 5500RPA	ASC 5000 G
220/240 V – 50/60 Hz	220/240 V – 50/60 Hz	220/240 V – 50/60 Hz	220/240 V – 50/60 Hz
R 134a	R 134a	R 1234yf	R 1234yf
9103301844	9103301845	8885200102	8885200104
•	•	•	•
30	40	30	30
5 cars/h	192 l/min.	5 cars/h	5 cars/h
0,32	0,6	0,32	0,32
150	150	150	150
Close to 100 %	min. 95 %	Close to 100 %	min. 95 %
•	-	•	-
15 kg	26 kg	15 kg	15 kg
Display	Display	Display	Display
-	-	integrated/automatic	extern/optional
automatic	automatic	automatic	automatic
automatic / electronic	automatic	automatic / electronic	automatic / electronic
automatic	automatic	automatic	automatic
automatic	automatic	automatic	automatic
automatic	automatic	automatic	automatic
-	-	-	-
automatic	automatic	automatic	automatic
automatic	automatic	automatic	automatic
automatic	automatic	automatic	automatic
Manometer	Manometer	Manometer	Manometer
Display	Display	Display	Display
•	•	•	•
•	•	•	•
•	•	•	•
•	•	-	•
•	•	•	•
•	•	•	•
-	•	-	•
•	-	•	-
• / -	• / F	• / -	• / -
•	•	•	-
•	•	•	•
•	-	-	-
8887200013 •	-	-	-
8887200014 •	-	-	-
-	•	-	-
-	-	•	-
4440600026	4440600026	4440600026	4440600026
-	4440600033	-	-
4445900081	4445900081	4445900081	4445900081
8885200088	8885200088	-	-
4445900088	4445900088	4445900088	4445900088
8885100026	8885100026	8885100109	8885100109
8885100025	8885100025	8885100108	8885100108
-	-	4440600175	4440600175
-	-	4440600176	4440600176
8885400027	8885400027	with clearance ventilation: 8885400171	with clearance ventilation: 8885400171 Standard: 8885400164
8885400026	8885400026	with clearance ventilation: 8885400170	with clearance ventilation: 8885400170 Standard: 8885400163
560 x 1300 x 650	560 x 1300 x 650	560 x 1300 x 650	560 x 1300 x 650
100	110	110	100

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 / R 1234yf

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, R 134a Ref. No. 8885200088
Replacement filter Ref. No. 8880700246
Universal flush container, R 1234yf Ref. No. 8885200272



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. 5).

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 no. 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



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

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 ASC 2500 and ASC 5500RPA

- 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 ASC 2500, models built in 2013 or later
including G models // Ref. No. 4440400009
Drier for ASC 5000/5500RPA // Ref. No. 4445900221



4440400009

Vacuum pump oil

Vacuum pump oil

- Contains 1 litre; HT 32

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 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

Electronic leak detector TP-9364/F

R 1234yf

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

R 1234yf

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



8885100106



8885100107

External refrigerant analysis tool Ref. No. 8885100106

External refrigerant analysis tool Ref. No. 8885100107

Service coupler

R 1234yf

Service coupler with clearance ventilation

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



Service coupler, LP Ref. No. 8885400170

Service coupler, HP Ref. No. 8885400171

Service coupler

R 1234yf

Service coupler

- Quality coupler
- Complies with SAE J 639
- Suitable for leak checks



Service coupler, LP Ref. No. 8885400163

Service coupler, HP Ref. No. 8885400164

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

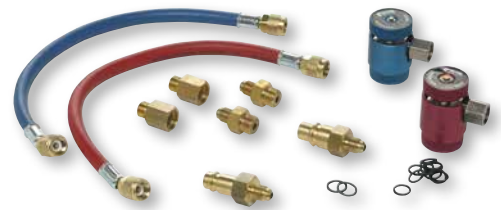
Extension kit for nitrogen pressure gauge and leak detector (8885400092) for use on R 1234yf air conditioners

Scope of delivery:

- 1 x high side service coupler 8885400164,
- 1 x low side service coupler 8885400163,
- 2 x adapter 8885400162, 2 x adapter 8885400081, 1 x HP adapter 8885400178,
- 1 x LP adapter 8885400177, 1 x blue hose 8885100110,
- 1 x red hose 8885100111, 2 x O-ring 8881500041,
- 1 x O-ring (sales pack of 10 pcs.) 8881500055

Nitrogen extension kit

Ref. No. 8885400165



Service filter

R 1234yf

High-performance filter for ASC 5000 G / ASC 5000 RPA / ASC 5500 RPA series

- Special connector for easy installation

Service filter ASC 5000RPA/5500RPA Ref. No. 4445900221

Service filter ASC 5000 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

R 1234yf

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

Special oils ND12, SPA2 and VC200yf

R 1234yf

Special oils for use in R 1234yf A/C systems

- Moisture-free storage of the PAG oil

ND12, 100 ml

Ref. No. 8887200031

SPA2, 500 ml

Ref. No. 8887200039

SPA2, 250 ml

Ref. No. 8887200048

VC200yf, 500 ml

Ref. No. 8887200046

PAG 46yf, low viscosity, 500 ml

Ref. No. 8887200041



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



Picture similar



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

Ref. No. TP-9828

Spare spindle

Ref. No. 9103500683

3 cartridges, 14.80 ml each

Ref. No. TP-9825-0301



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 by means of dry ice at a temperature of about -80°C . 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

Scope of delivery: seal, adapter for recycling bottle, filling hose LP, service coupler LP side, bottle fixture, passive cooler for dry ice

Recovery equipment

Ref. No. 8885200271



Bottle not included



Risk-free condensation into a special recycling bottle via the disposal port on the rear of the A/C service unit (ASC 5500RPA)



Condensation directly into the recycling bottle without connecting the A/C service unit is also possible



During the condensation process the pressure is monitored by a 4-way manifold

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.

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!



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.

PAG compressor oil

The right oil for all currently available A/C compressors

- PAG oil, 250 ml

R 134a

PAG ISO 46, low viscosity	Ref. No. 8887200001
PAG ISO 100, high viscosity	Ref. No. 8887200002
PAG ISO 150, ultrahigh viscosity	Ref. No. 8887200008

R134a/R1234yf

PAG ISO 46yf, low viscosity	Ref. No. 8887200042
SPA2	Ref. No. 8887200048



Compressor oil

Unique oil charging system for professional use

- Moisture-free and clean storage
- Prevents penetration of contaminants into the A/C service unit
- Long shelf life without quality loss
- High-capacity containers, need to be replaced less often

R 134a

PAG ISO 46, low viscosity, 500 ml	Ref. No. 8887200013
PAG ISO 100, high viscosity, 500 ml	Ref. No. 8887200014
PAG ISO 150, ultrahigh viscosity, 500 ml	Ref. No. 8887200019
PAO ISO 68, universal oil, 500 ml	Ref. No. 8887200017
POE Ester oil SE 55 (not for hybrid), 500 ml	Ref. No. 8887200028
SPA2, 500 ml	Ref. No. 8887200039
PAG 46yf, low viscosity, 500 ml	Ref. No. 8887200041
ND8, 500 ml	Ref. No. 8887200021
ND11, 100 ml	Ref. No. 8887200035



R 1234yf

ND12, 100 ml	Ref. No. 8887200031
SPA2, 500 ml	Ref. No. 8887200039
VC 200yf, 500 ml	Ref. No. 8887200046
PAG 46yf, low viscosity, 500 ml	Ref. No. 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



Universal compressor oil with UV additive

R 134a

Universal compressor oil with UV additive

- Viscosity ISO 68, 1000 ml

Universal compressor oil

Ref. No. 8887200036



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

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

Ref. No. TP-9772

Spare cartridge, 120 ml

Ref. No. TP-9775-0104



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

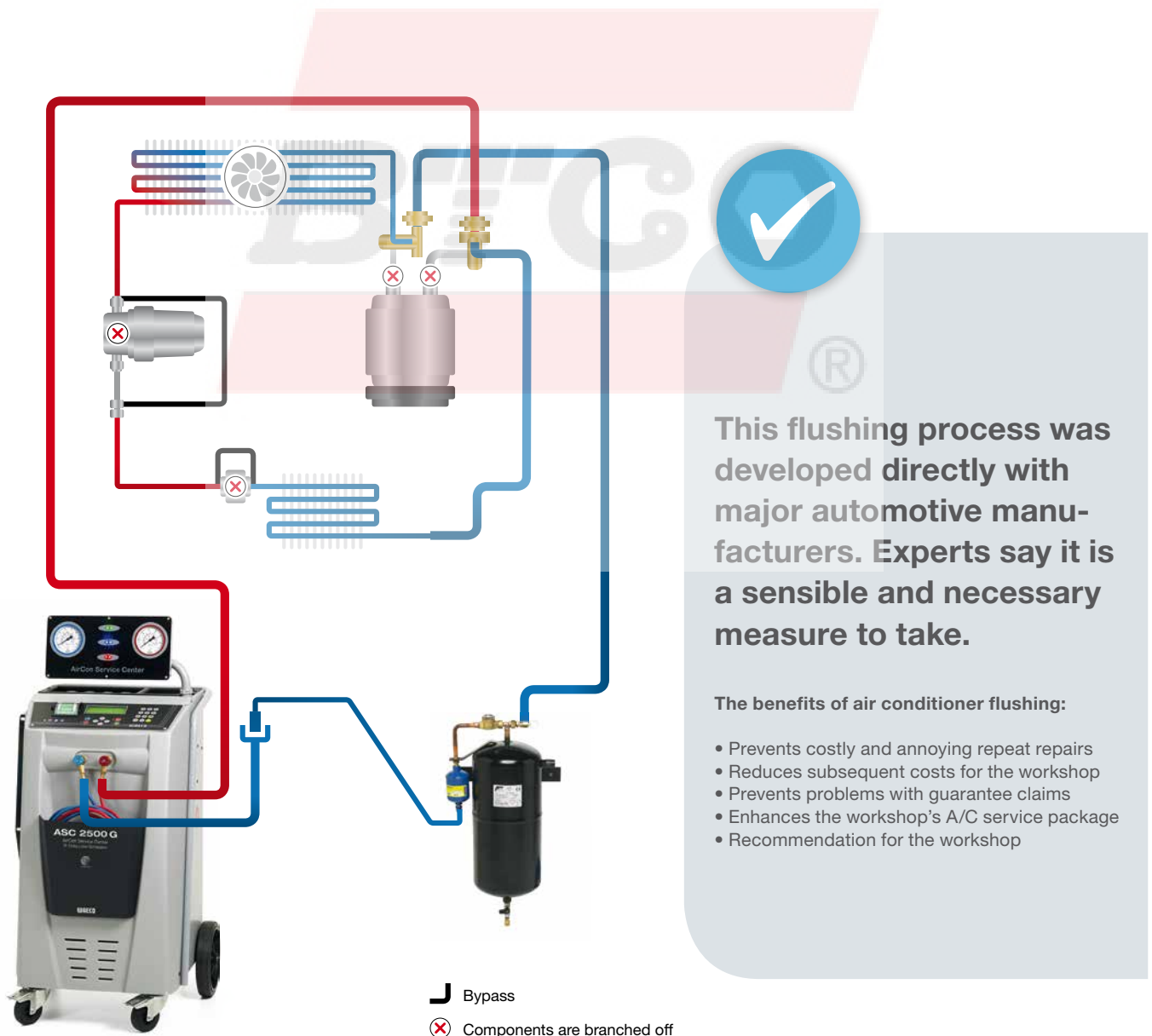


CLEAN WORKING – IT PAYS TO FLUSH!

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 chip filter (Ref. No. 8880700246) should be replaced after every flushing process (for each vehicle)!



Universal flush container

R 134a / R 1234yf

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



A/C flush adapter kit, 17 items

R 134a

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



A/C flush adapter kit II, 18 items

R 134a

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

R 134a

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

R 134a

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

R 134a

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

R 134a

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.

Recycle Guard
Universal mounting bracket
Spare filter

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



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



Universal mounting bracket, fits all A/C service units



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






Suitable for A/C service units of all makes

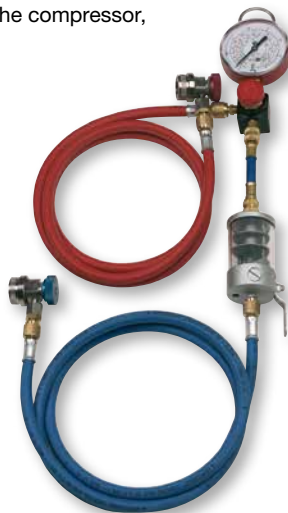
Oil Checker

R 134a

Scope of delivery: Oil checker, one-way manifold, blue service hoses, red service hoses, red service coupler

Ref. No. 8885100086

-  **Dark red/black**
Overheated oil: check the condition of the compressor, oil flush required
-  **Orange/yellow**
Oil starts to overheat: check the condition of the compressor, oil flush required
-  **Pale yellow/white**
Oil OK



Watch the Oil Checker instructions video at
www.airconservice.eu/oilchecker





Hybrid flush kit

R 134a / R 1234yf

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	Art.-Nr. 8885200270
Hybrid flush kit for ASC 5000 / ASC 5000 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

Vacuum pump, 42 l/min

R 134a / R 1234yf

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

R 134a / R 1234yf

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 143 x 265 mm
Oil capacity	400 ml	Weight	11.2 kg

Vacuum pump

Ref. No. 8885200256



Refrigerant recovery unit

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. 8885200059



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

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

Specifications

Voltage supply	9-volt block battery / 220 volts
Maximum weight	110 kg
Dimensions (platform)	220 x 220 mm

Refrigerant scales

Ref. No. 8885100099



LEAK DETECTION – SIX METHODS TO TRACE LEAKS

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.





LEAKAGE CONTROL – AN ABSOLUTE MUST

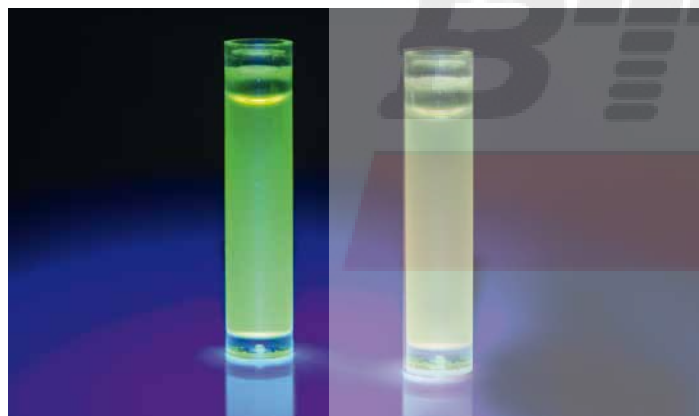
The utopia of a maintenance-free A/C system has been abandoned long ago. These days, A/C experts accept the fact that refrigerant losses occur with virtually every system. These losses do not always result from torn ducting or damages through accidents. Even totally intact systems lose some refrigerant – 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 defect 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. What's the best way to detect a leak though?



Our TIP

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.



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 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.)



Approved by automotive manufacturers

UV leak detection kit

Ref. No. 8885300072

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[®] under-hood labels (24 pcs.)

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 (24 pcs.)

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
- High light output for high-performance leak detection
- No preheating required – ready for use straight away!
- 5.5 m connection cable

Scope of delivery: UV lamp, UV glasses, connection adapter

SK18/2: Supplied in a sturdy plastic case

UV leak detection lamp	Ref. No. TP-8690X
SK18/2, Set of leak detection lamps	Ref. No. 8885300115



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
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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
- Easy to use
- 100,000-hour LED bulb

Scope of delivery: UV lamp, UV glasses

UV leak detection lamp	Ref. No. TP-8640CS
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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**
- Individual quantities can be used as and when required
- **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	Ref. No. TP-3820-0016
Refill bottle 236 ml, for approx. 25 car applications	Ref. No. TP-3820-0008
Sales pack: 3 bottles, for 4 car applications	Ref. No. TP-3820-0301



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.

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



TRACER® UV additive (in patented container)

R 134a

For ASC series and other manufacturers' service units, 500 ml

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

Accessory 4440600026 (adapter)

TRACER® UV additive

Ref. No. TP-3820-500



Approved
by automotive
manufacturers

Picture similar
to product

TRACER® UV additive (in patented container)

R 1234yf

For ASC series and other manufacturers' service units, 500 ml

- TRACER® UV additive for approx. 71 applications when used in combination with ASC A/C service units

Accessory 4440600026 (adapter)

TRACER® UV additive

(based on original SPA2 oil)

Ref. No. TP-3825-500



TRACER® UV additive

R 1234yf

UV additive for R 1234yf refrigerant

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

3 cartridges (based on original SPA2 oil)
237 ml bottle (based on original SPA2 oil)

Ref. No. TP-9825-0301 (14.89 ml each)

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

Approved
by automotive
manufacturers

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

Approved
by automotive
manufacturers

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

Ref. No. TP-3400-0601

for cooling water

Ref. No. TP-3900-0601

**TRACER® hybrid application****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

Ref. No. TP-3812

Spare cartridge, sales pack: 3 pcs.

Ref. No. TP-3811-0301



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

Ref. No. TP-9000-0008

450 ml spray bottle

Ref. No. TP-9000-0016



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

Ref. No. TP-9848

Spare spindle

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

Ref. No. TP-9828

Spare spindle

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

Ref. No. 8885400065

Standard full-view goggles

Ref. No. 8885400066

UV glasses for leak detection

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	Ref. No. 8885400092
Extension kit HP for R 134a	Ref. No. 8885400124
Extension kit for R 1234yf	Ref. No. 8885400165 (s. page 31)



Approved
by automotive
manufacturers

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
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Nitrogen pressure reducer

R 134a

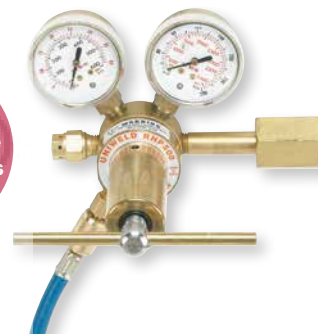
For controlled and safe admission of nitrogen to A/C systems (pressure test)

- 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
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Approved
by automotive
manufacturers



Nitrogen / forming gas 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

Electronic R 134a leak detector

Senses refrigerant concentrations in the ambient air

- Responds to R 134a 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

Specifications

Operating voltage	3 volts
Sensor service time approx.	100 hours
Length of neck	420 mm
Dimensions / weight	270 x 65 x 65 mm / 580 g (incl. battery)

R 134a leak detector	Ref. No. TP-9360
Sensor	Ref. No. 9103500684
Filter, sales pack: 20 pcs.	Ref. No. 9103500685



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

Specifications

Release rate	5 g/year
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Reference leak	Ref. No. 8885100095
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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
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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
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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 efficient. 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

R 134a / R 1234yf

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	Ref. No. 8885200270
Hybrid flush kit for ASC 5000 / ASC 5000 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



TRACER® hybrid application



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



ND11 and SPA2 compressor oil

- Special compressor oil for high-voltage hybrid applications

ND11, 100 ml Ref. No. 8887200035
SPA2, 250 ml Ref. No. 8887200048
SPA2, 500 ml Ref. No. 8887200039



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



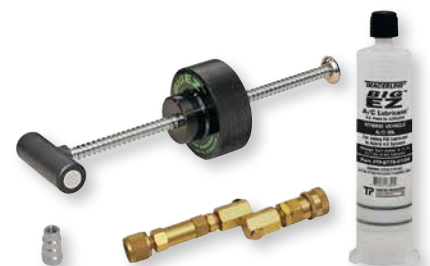
Starter kit hybrid oil



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 Ref. No. TP-9772
Spare cartridge Ref. No. TP-9775-0104



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.



Contents, specifications and availability are subject to change due to the technical improvement. We are not liable for errors and printing mistakes.

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!**



Effectiveness approved according to EN 1040*

* 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.



Saver tip:
100 ml single portion

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 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 57.



Refresh-o-mat HD
Hose set

Ref. No. 8885300096
Ref. No. 8885300097

Refresh-o-mat ultrasonic atomiser

For product details please refer to page 57.



Refresh-o-mat

Ref. No. 8885300082

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

Ref. No. 8887400009

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

Ref. No. 8887400015



Saver tip:
100 ml single portion



INDISPENSABLE TOOLS: THE SPECIALISTS FOR PERFECT WORKMANSHIP

Service quick couplers (see page 62)

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 62)

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 68 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 for 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 +0°C

Dual diagnostic thermometer

Ref. No. 8885100127

Accessories:

Surface sensor

Ref. No. 8885100128

Temperature probe

Ref. No. 8885100129



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 centre 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 (low pressure side)

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



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 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 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 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

Ref. No. 8885300126

Disconnect set

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, 9 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



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



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



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

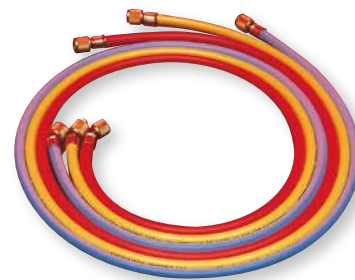


Check out our complete range at
www.airconservice.eu/easy-repair

Charging hoses and vacuum hoses

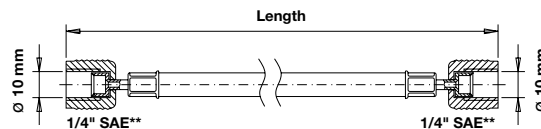
Service hoses in various colours for all applications in A/C fitting and service

- 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



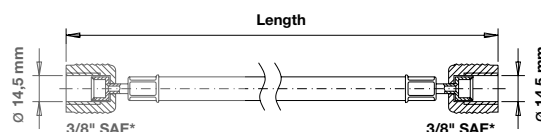
Ref. No. 8885100005 (red hose, 1800 mm)
Ref. No. 8885100006 (blue hose, 1800 mm)
Ref. No. 8885100007 (yellow hose, 1800 mm)
Ref. No. 8885400022 (spare seal)

R 134a



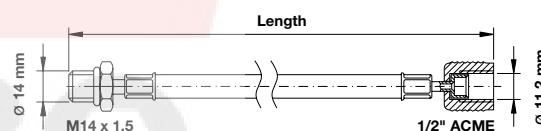
Ref. No. 8885100008 (red hose, 1800 mm)
Ref. No. 8885100024 (red hose, 5000 mm)
Ref. No. 8885100009 (blue hose, 1800 mm)
Ref. No. 8885100023 (blue hose, 5000 mm)
Ref. No. 8885100010 (yellow hose, 1800 mm)
Ref. No. 8881500037 (spare seal, sales pack: 10 pcs.)
Ref. No. 8885400023 (seal)

R 134a



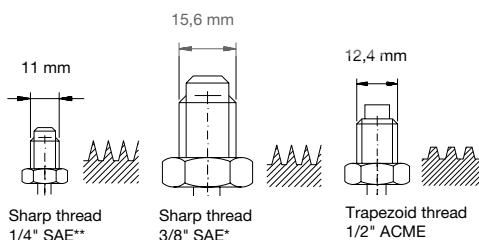
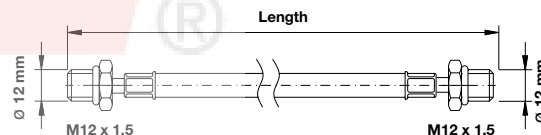
Ref. No. 8885100011 (red hose, 1800 mm)
Ref. No. 8885100065 (red hose, 3000 mm), standard ASC
Ref. No. 8885100026 (red hose, 5000 mm)
Ref. No. 8885100028 (red hose, 8000 mm)
Ref. No. 8885100012 (blue hose, 1800 mm)
Ref. No. 8885100064 (blue hose, 3000 mm), standard ASC
Ref. No. 8885100025 (blue hose, 5000 mm)
Ref. No. 8885100027 (blue hose, 8000 mm)
Ref. No. 8881500034 (spare seal)

R 134a






Ref. No. 4440600175 (red hose, 3000 mm)
Ref. No. 4440600176 (blue hose, 3000 mm)

R 1234yf



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

* 3/8" SAE = 5/8" UNF,
** 1/4" SAE = 7/16" UNF

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 8885400027	Service quick coupler, low pressure, for R 134a with M14 x 1.5 inside thread Service quick coupler, high pressure, for R 134a with M14 x 1.5 inside thread
	8881500090 8881500088	Service port low pressure, R 134a, with outside thread, for Mercedes-Benz, Porsche, BMW, MAN, Opel Service port low pressure, R 134a, with inside thread, for VW, Audi, Ford, Chrysler
	8881500087 8881500089	Service port, high pressure, R 134a, with outside thread, for Mercedes-Benz, Porsche, BMW, MAN, Opel Service port, high pressure, R 134a, with inside thread, for VW, Audi, Ford, Chrysler
	8881500006 8881500007	Sealing cap for service port, R 134a, high pressure Sealing cap for service port, R 134a, low pressure
	8881500038 8881500039	Sealing cap for service port, R 134a, high pressure, for Japanese A/C systems Sealing cap for service port, R 134a, low pressure, for Japanese A/C systems
	8885400033 8885400082	Connection adapter with 1/4" SAE inside thread and connection for R 134a service quick coupler, low-pressure side 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 8881500014	90° retrofit adapter for the high-pressure side with 1/4" inside thread 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 8885400035	Adapter 1/4" x low-pressure side 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
SK48, without tools	Ref. No. 8885300129
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

SK26, set of orifice tubes Ref. No. 8885300117



Original replacement O-rings for car air conditioners with R 134a, 654 items

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 for truck air conditioners with R 134a, 330 items

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

- 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

- 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



Description




Click Lock service quality seal
Ref. No. 8887300008


Description



Ester compressor oil SE 55
500 ml
Ref. No. 8887200028




Service stickers
Sales pack: 5 pcs.
Ref. No. 8887300007




Universal PAO ISO 68 compressor oil
1000 ml
Ref. No. 8887200009




Refillable steel bottle R 134a
Refill only
Ref. No. 8887100007




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




Refillable steel bottle R 1234yf
Refill only
Ref. No. 8887100019




Vacuum pump oil ISO 32
1000 ml
Ref. No. 8887200018



PAG compressor oil, each 250 ml
Ref. No. 8887200001 // PAG ISO 46
Ref. No. 8887200002 // PAG ISO 100
Ref. No. 8887200008 // PAG ISO 150
Ref. No. 8887200042 // PAG ISO 46yf
Ref. No. 8887200048 // SPA2




Leak detection spray
Leak detection by formation of foam on leaky spots in the refrigerant circuit, 500 ml
Ref. No. 8887300018




Compressor oil, each 500 ml
Ref. No. 8887200013 // PAG ISO 46
Ref. No. 8887200014 // PAG ISO 100
Ref. No. 8887200019 // PAG ISO 150
Ref. No. 8887200017 // Universal PAO oil
Ref. No. 8887200028 // Ester oil SE 55




TRACER® sticks
for R 134a in combination with PAG oil sales pack: 6 pcs.
Ref. No. TP-3860-0601




Compressor oil
ND 8, Ref. No. 8887200021, 500 ml
ND 11, Ref. No. 8887200035, 100 ml
ND 12, Ref. No. 8887200031, 100 ml
VC 200 yf, Ref. No. 8887200046, 500 ml
SPA 2, Ref. No. 8887200039, 500 ml



TRACER® cartridge
for R 134a in combination with PAG oil sales pack: 3 pcs.
Ref. No. TP-9860-0301



Ester compressor oil for R 134a and R 404
1000 ml
Ref. No. 8887200006



TRACER® cartridge
for R 134a in combination with PAG oil sales pack: 3 pcs.
Ref. No. TP-9760-0304

Description	Description
 <p>TRACER® bottle 236 ml for R 134a in combination with PAG oil Ref. No. TP-3820-0008</p>	 <p>UV additive injection kit for hybrid vehicles Ref. No. TP-3812 Spare cartridge Ref. No. TP-3811-0301</p>
 <p>TRACER® bottle 475 ml for R 134a in combination with PAG oil Ref. No. TP-3820-0016</p>	 <p>Air conditioner cleaner AirCon Refresh, 1000 ml For use with Refresh-o-mat Ref. No. 8887400008</p>
 <p>TRACER® bottle for R 134a in combination with PAG oil, sales pack: 3 pcs. Ref. No. TP-3820-0301</p>	 <p>Air conditioner cleaner AirCon Refresh, 100 ml, sales pack: 20 pcs. For use with Refresh-o-mat Ref. No. 8887400016</p>
 <p>TRACER® UV additive 500 ml UV tracer dye, in patented container Ref. No. TP-3820-500 (R 134a) Ref. No. TP-3825-500 (R 1234yf)</p>	 <p>Car Refresh smell eliminator Car Refresh, 1000 ml For use with Refresh-o-mat Ref. No. 8887400009</p>
 <p>TRACER® UV additive R 1234yf UV tracer dye for R 1234yf refrigerant Ref. No. TP-9825-0301, 3 cartridges of 14.8 ml Ref. No. TP-3825-0008, 237 ml</p>	 <p>Car Refresh smell eliminator Car Refresh, 100 ml, sales pack: 20 pcs. For use with Refresh-o-mat Ref. No. 8887400015</p>
 <p>TRACER® dyes for oils and fuels sales pack: 6 pcs. Ref. No. TP-3400-0601</p>	 <p>Insulating material Tar tape Ref. No. 8887300001 Neoprene tape Ref. No. 8887300002</p>
 <p>TRACER® dyes for cooling water sales pack: 6 pcs. Ref. No. TP-3900-0601</p>	 <p>Heat protection pipe 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 For fast retrofitting on refrigerant lines Suitable for temperatures up to 600°C Ref. No. 8887300003 // Length: 425 mm // Ø inside 26,5 mm Ref. No. 8887300004 // Length: 240 mm // Ø inside 36,5 mm Ref. No. 8887300005 // Length: 1000 mm // Ø inside max. 30 mm</p>
 <p>TRACER® GLO-AWAY 225 ml Ref. No. TP-9000-0008 450 ml Ref. No. TP-9000-0016</p>	



ASC 1000 G

R 134a

Basic entry-level package for A/C service use

- **Airon Service Centre 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

- **Airon Service Centre ASC 2000 G** Ref. No. 910330184
- **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

- **Airon Service Centre ASC 2500 G** Ref. No. 9103301844
- **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 Centre 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 5000 G

R 1234yf

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

- | | |
|--|-----------------------|
| • Aircon Service Centre ASC 5000 G | Ref. No. 8885200104 |
| • 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 |
| • SK31 Original replacement O-rings for R 134a refrigerant and PAG oil | Ref. No. 8885300118 |
| • 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 |



ASC 5500RPA

R 1234yf

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

- | | |
|--|-----------------------|
| • Aircon Service Centre ASC5500RPA | Ref. No. 8885200102 |
| • 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 |
| • SK31 Original replacement O-rings for R 134a refrigerant and PAG oil | Ref. No. 8885300118 |
| • 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	V = compressor with suction pressure regulator
LP = suction pressure	F = compressor with constant displacement
HP = high pressure	

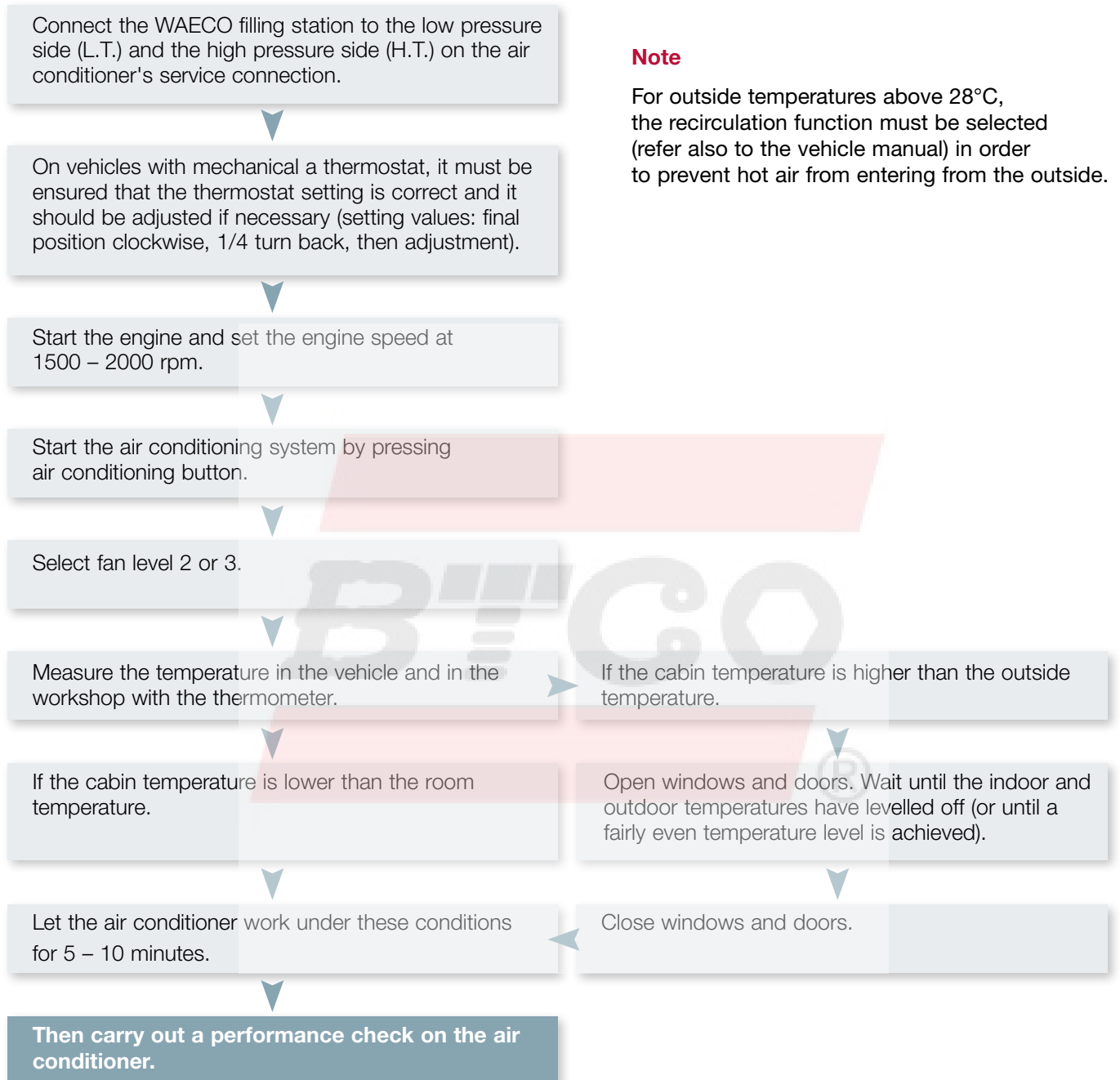
How to use the chart

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



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

	20°C	25°C	30°C	35°C
Outside temperature at the vehicle/ ambient temperature				
Exhaust-temperature at the centre 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.

No

Yes

Does the air conditioning system have an abnormally loud noise?

For problem-solving, use base table B.

No

Yes

Does the air conditioner cause an unpleasant smell?

For problem-solving, use base table C.

No

Yes

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		R134a		R134a		R134a		R134a		R134a	
	LP (bar _e)		HP (bar _e)		LP (bar _e)		HP (bar _e)		LP (bar _e)		HP (bar _e)	
	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".

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

Example of using the diagnosis sheet:

Manometer with large deviation

Working range HP (with an outside temperature which is between 15.5 and 43°C)

Working range LP (reading occurs with an outside temperature which is between 15.5 and 43°C.



Low pressure too high

High pressure normal (▲) or low (▲)



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

Error

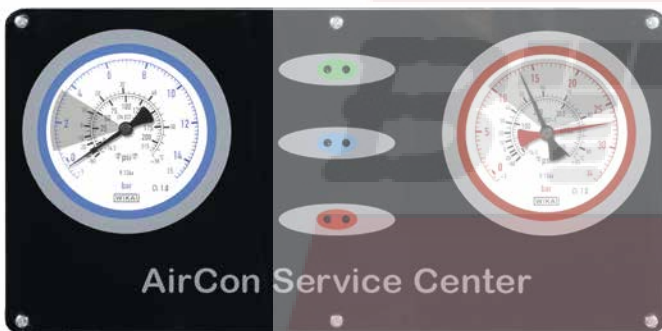
Possible cause



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)

Error

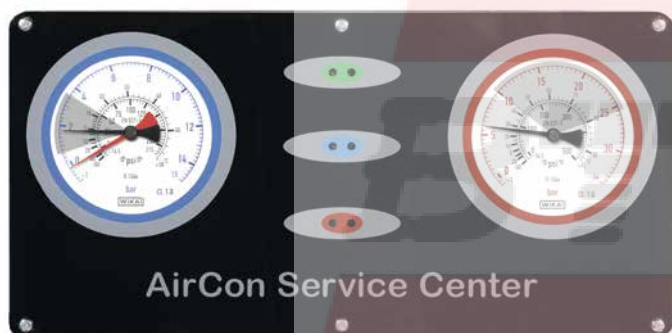
Possible cause



Low pressure high (H)
or normal (I)

High pressure too
high

- 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.

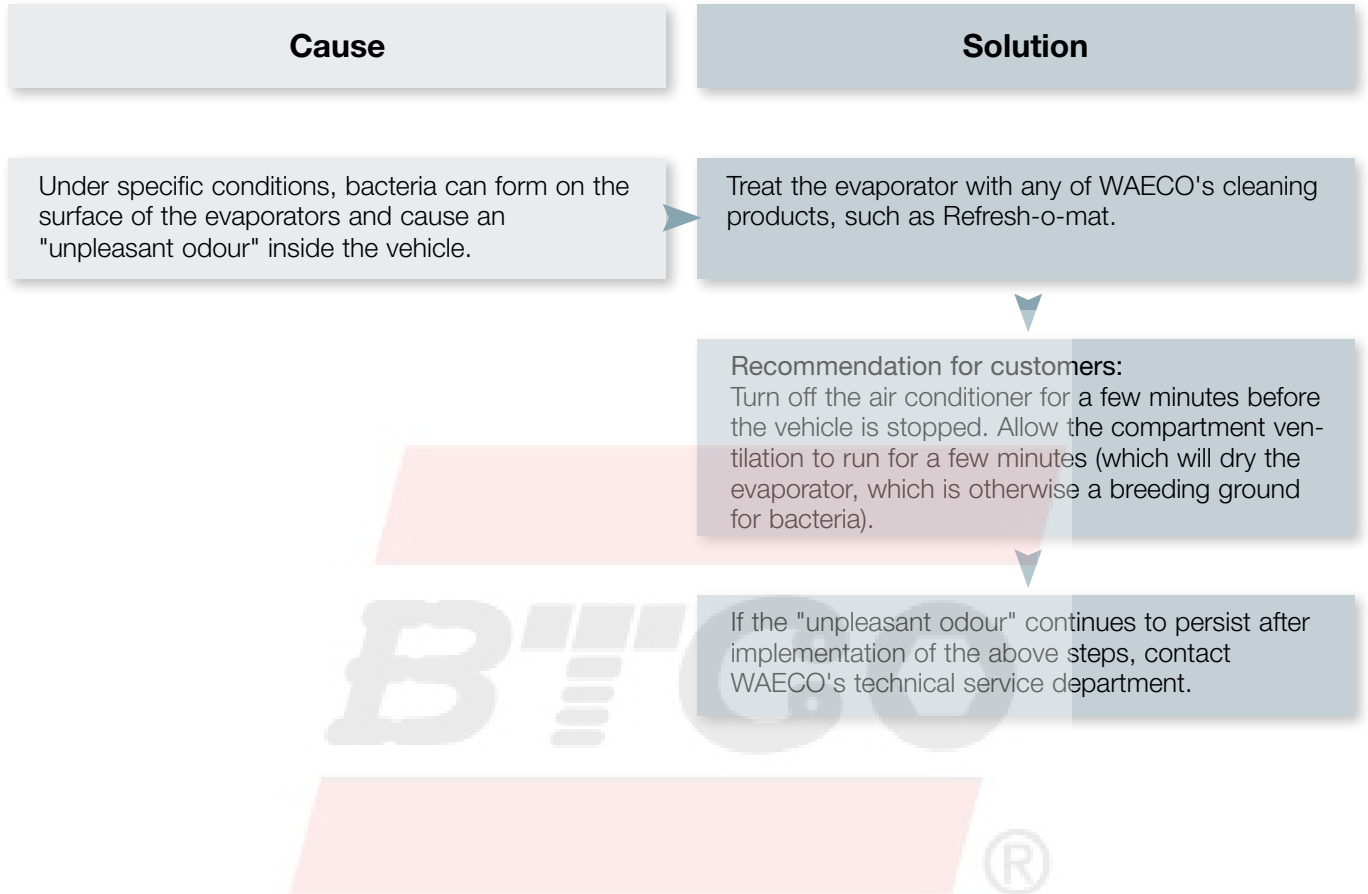
Note

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.



Did you know ...

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



Step 4**Worksheet 1**

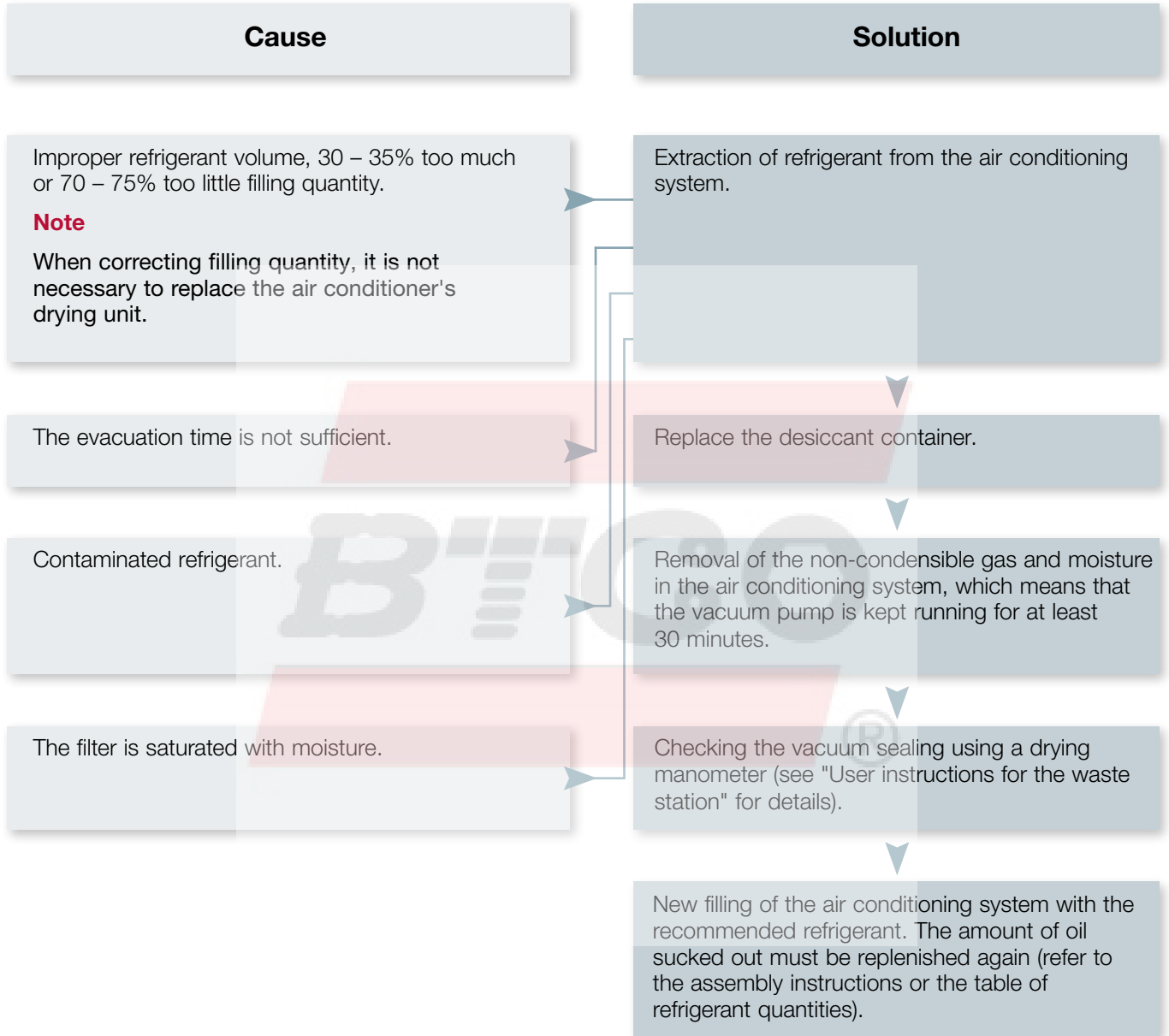
For high condenser pressure.

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-condensable gas or moisture in the system.



Worksheet 3

The expansion valve is defective



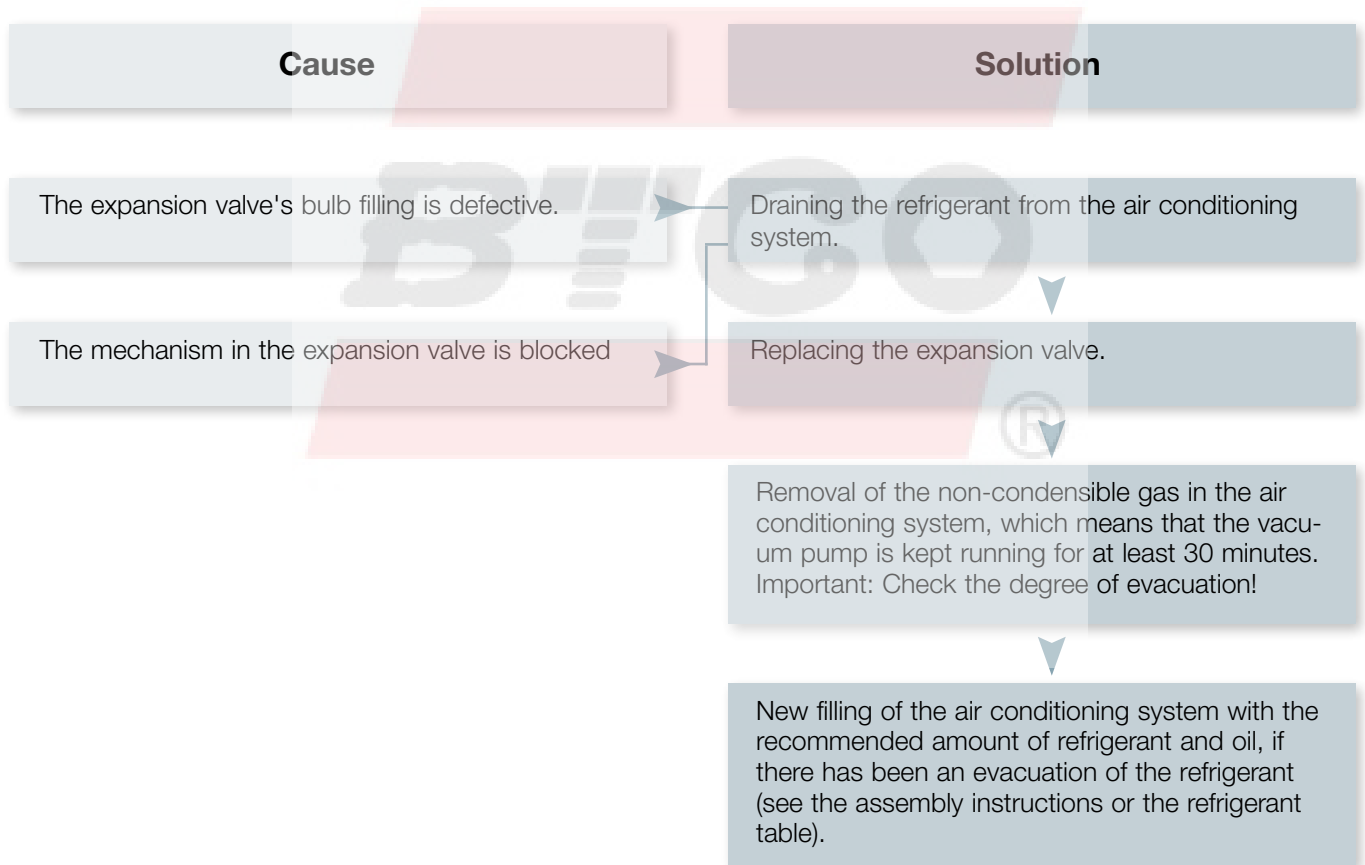
Note

The expansion valve's 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:

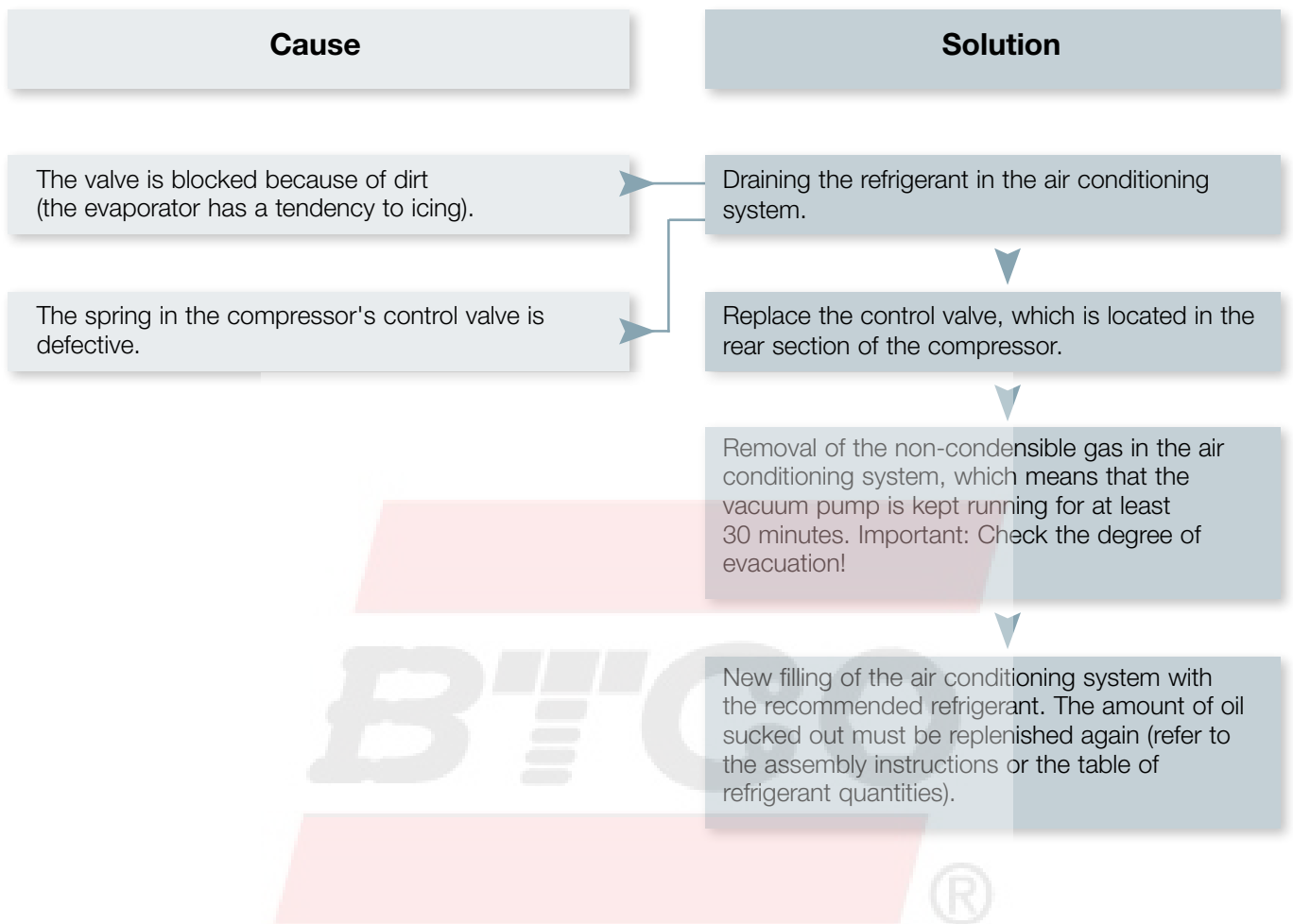
- **Allow the temperature sensor to cool.**
You should be able to note a reduction in the high and low pressure.
- **Allow the temperature sensor to warm up.**
You should be able to note an increase in the high and low pressure.

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



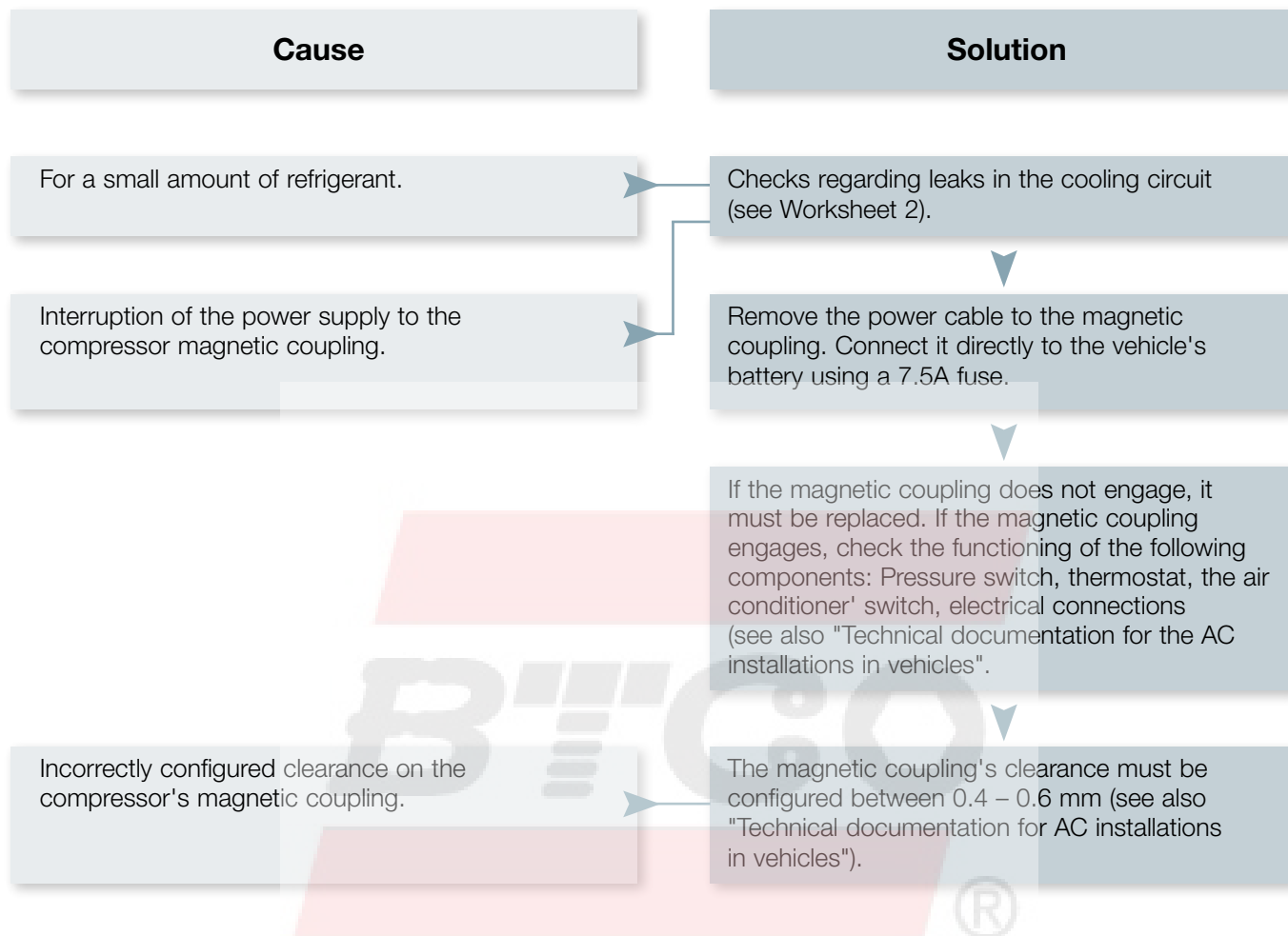
Did you know ...

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



Worksheet 5

The compressor's magnetic coupling "slips" or does not engage



Did you know ...

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



Worksheet 6

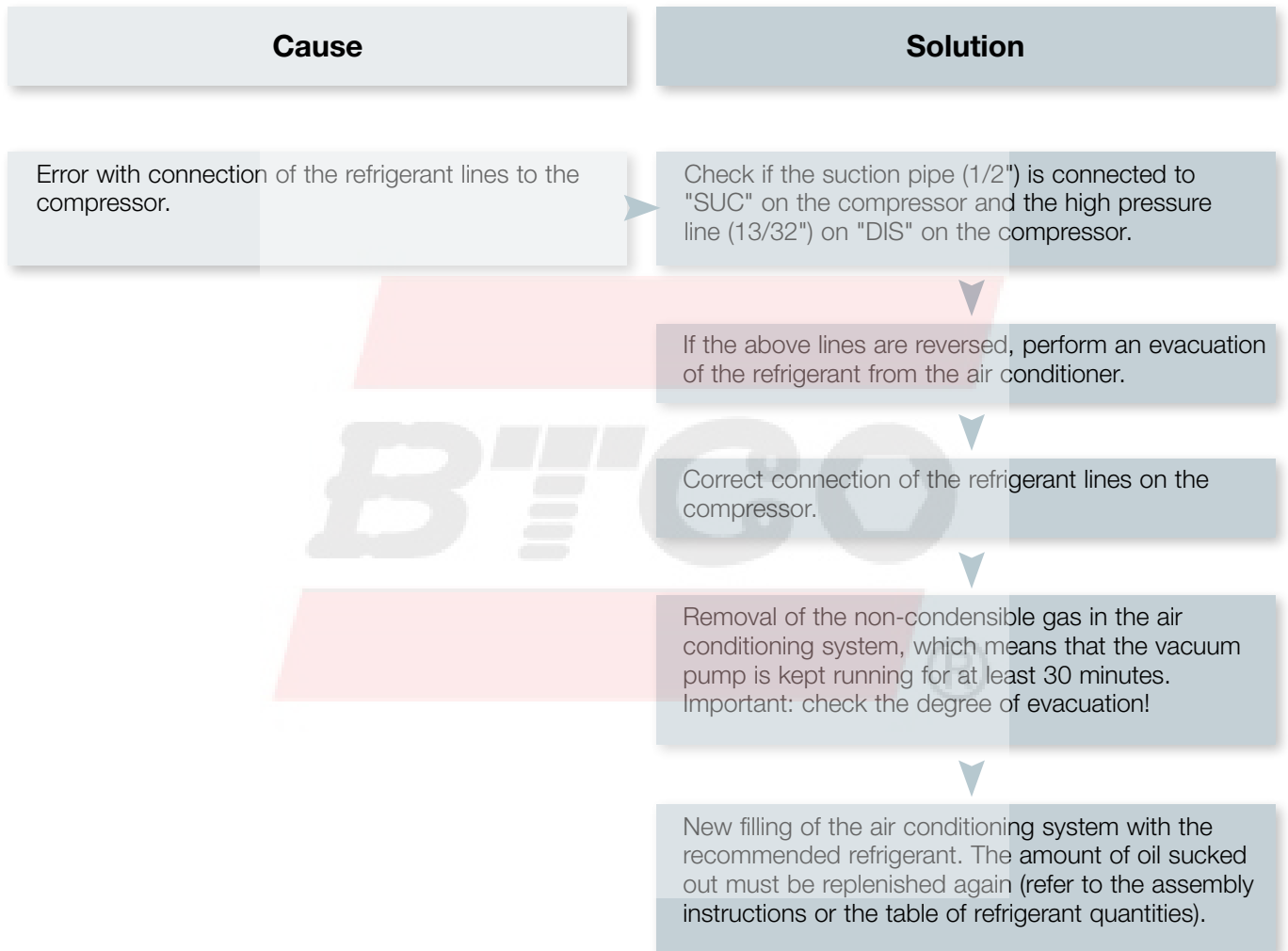
The high and low pressure lines on the compressor are reversed



NOTE!

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.	Locating the stoppage by looking for an abnormal temperature change along the refrigerant circuit (warm on front of the stoppage, cold after the stoppage).
	Draining the refrigerant from the air conditioning system.
	Replacing the clogged component.
	Checking the refrigerant circuit regarding several dirt accumulations.
	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 ...

... that you should never recycle a pressureless air-conditioner, but always test it with nitrogen before filling?
See page 52



Worksheet 8

Ice formation on the evaporator



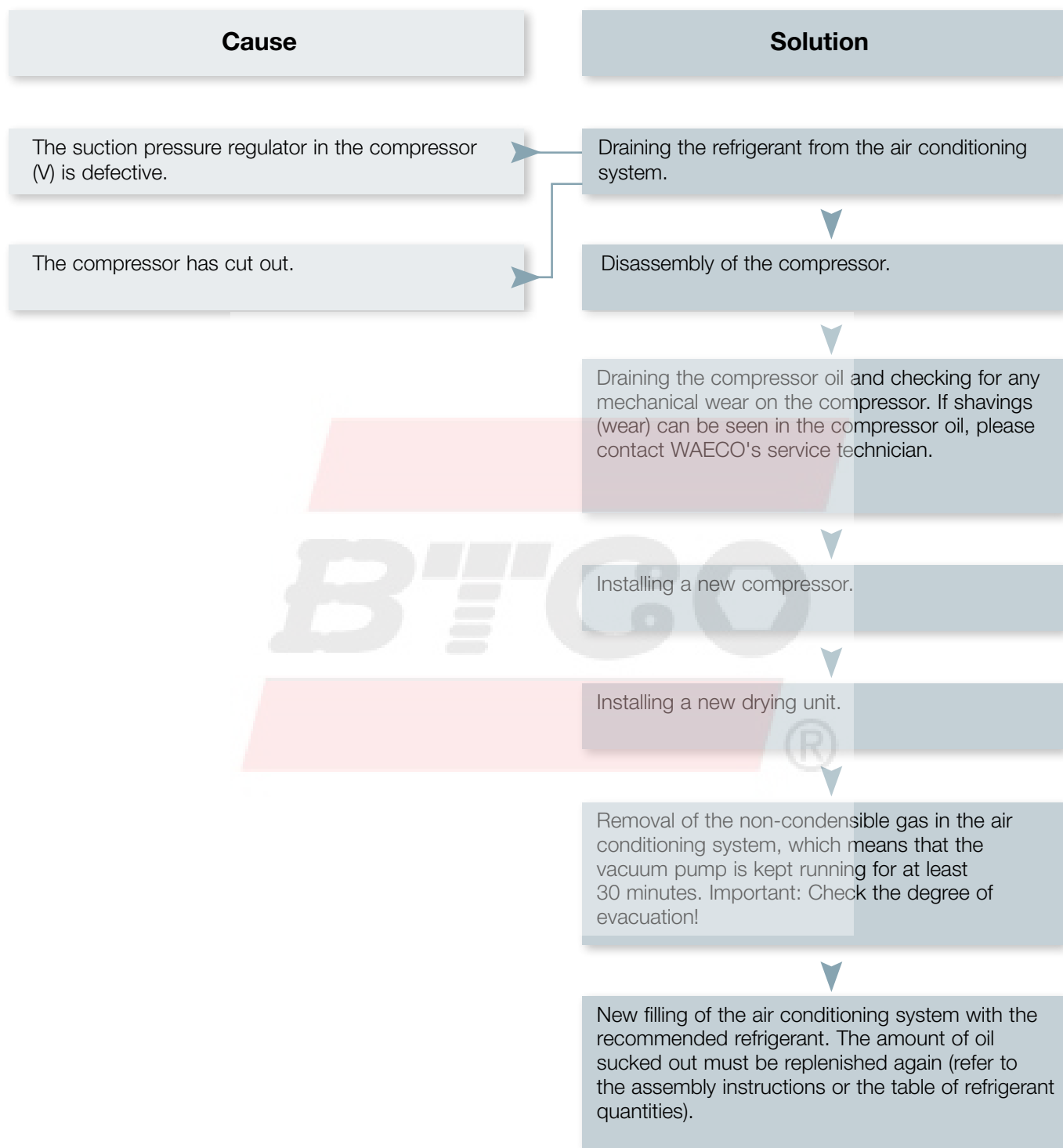
Note

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.

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.

Worksheet 9

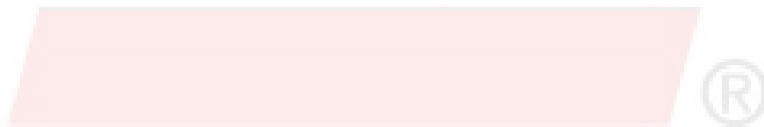
Defective compressor



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)

In order for the AC system to work as safely and efficiently as possible, it is essential that spare parts are fitted correctly. Below are instructions that facilitate assembly.

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

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

- 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

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.



WAECO AirCon Service

FAQ

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.

WAECO AirCon Service

FAQ

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.

WAECO AirCon Service

FAQ

Can I accidentally confuse R134a A/C systems with R1234yf 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. R134a)?

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.

WAECO AirCon Service

FAQ

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.



HOW TO BE A SUCCESSFUL A/C PROFESSIONAL

Use our comprehensive range of equipment for service and repairs on automotive A/C systems to make your company an efficient and successful A/C workshop. Polar bear Eddie supports you with useful information and advertising material that will keep you an Eddie nose length ahead of your competitors!



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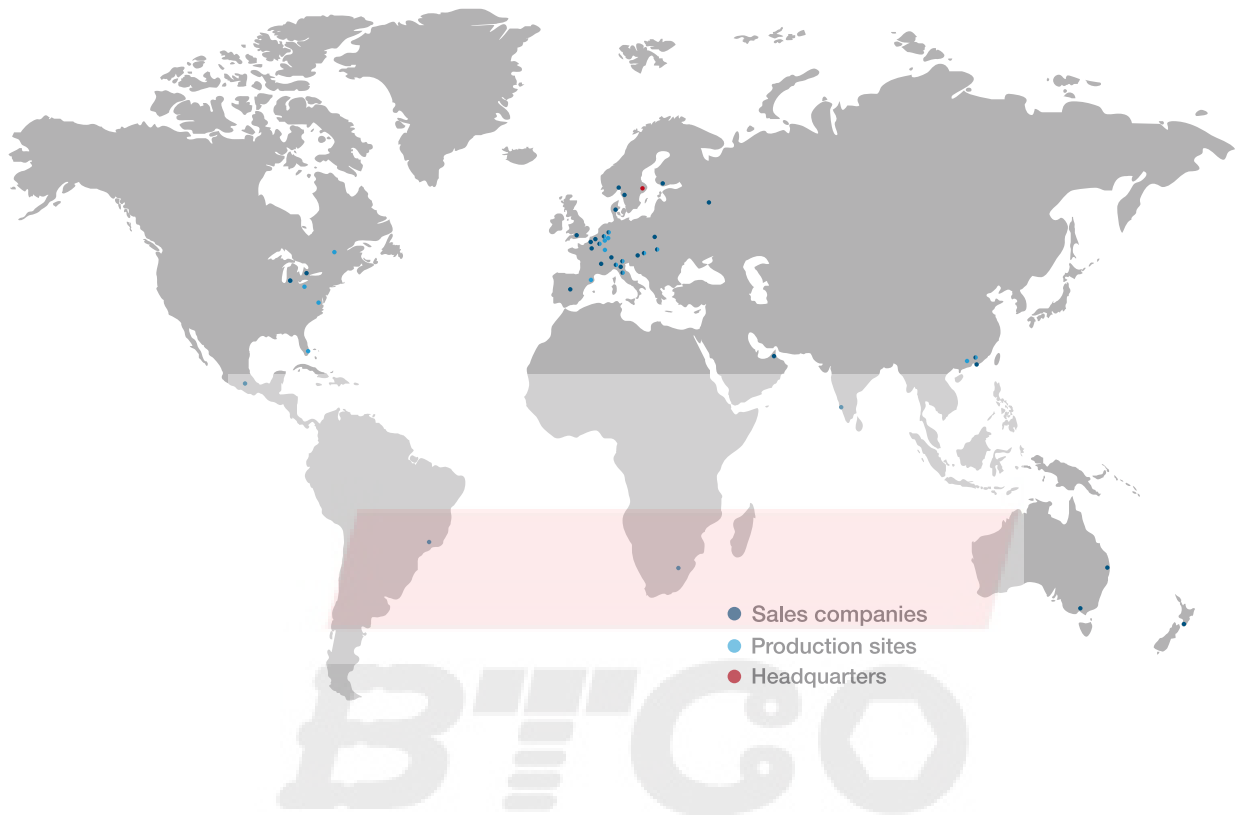
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