WAECO

AirCon Service

AIR CONDITIONING WORKSHOP EQUIPMENT

A/C SERVICE UNITS | CONSUMABLES
AND ACCESSORIES FOR R1234yf | R134a | R513A

2023

WAECO 2023

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WAECO
AirCon Service

THE WAECO BRAND

THE WAECO BRAND PROMISE IS TO MAKE DAILY WORK IN A/C MAINTAINANCE AND REPAIRS EASIER, SAFER, MORE PROFITABLE AND MORE ENVIRONMENTALLY FRIENDLY

- Single source A/C workshop equipment
- Fully automatic A/C service units for cars, buses and commercial vehicles
- Professional accessories for leak detection
- Environmentally friendly solutions for A/C cleaning and disinfection
- Precise measuring instruments and practical workshop kits
- Compressor oils, leak detection oils, refrigerants and other consumables
- Original replacement parts for vehicle A/C (WAECO AirCon Parts)

IMPROVE SUSTAINABILITY NOW

LOW EMISSION A/C SERVICE UNITS
SAVE COSTS AND PROTECT THE ENVIRONMENT

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Universal entry-level model

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Classic model for professionals

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ASC A/C SERVICE UNITS

WORLD'S FIRST TRIPLE CERTIFIED A/C UNIT

WAECO ASC 6400 G LE is the first A/C service unit worldwide to be approved by a testing institute (TÜV Nord) for use with the three refrigerants R134a, R1234yf and R513A. The service unit can be "personalised" for the respective application by using a dedicated hose package for each refrigerant and by dedicated programming for the refrigerant at hand.

The base unit needs to be combined with one of the hose kit`s. When putting the unit in operation for the first time, you have to specify which refrigerant the unit will be used from now on.

PLEASE NOTE: Due to legislation and security reasons it is not permitted to exchange hose sets for the use with various refrigerants. This is why you can lay down this specification only once.

STEP 1

Choose service unit
The new ASC 6000-series service units from WAECO have a triple certification for R134a, R1234yf and R513A. You can choose between all models, regardless of which refrigerant you want to use them for.

STEP 2

Choose connection kit
The choice of the connection kit depends on the type of refrigerant in the A/C system. You can also choose between different hose lengths: 3, 5 or 8 m. In a busy workshop longer hoses are an advantage, as the aircon service can be done while the car is lifted for other service jobs.

R134a R513A

Every kit includes service couplers,oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m** Ref. No. 8885500008
Option2: Connection kit **5 m** Ref. No. 8885500009
Option3: Connection kit **8 m** Ref. No. 8885500010

R134a R513A

Bus application with POE oil
Connection kit **8 m** incl. service couplers, POE oil, connection port and refrigerant bottle adapter

Ref. No. 8885500014

R1234yf

Every kit includes service couplers, oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m** Ref. No. 8885500011
Option2: Connection kit **5 m** Ref. No. 8885500012
Option3: Connection kit **8 m** Ref. No. 8885500013

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.

Upgrading options: heat belt, humidity free storage and feeding system for fresh oil and UV additive

ASC 6100 G

ENTRY-LEVEL MODEL WITH UPGRADING OPTIONS

SOFT GRAPHIC DISPLAY

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

COMPLIES WITH SAE J 2099

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

UPGRADING OPTIONS

The ASC 6100 G can be upgraded with a heat belt. The unit is also prepared for the humidity free storage and feeding system for fresh oil or UV additive.

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.

Are you just starting to provide A/C service with only a few service orders per month? Here is a low-cost service unit that gives you all the features required for safe work. The new ASC 6100 G performs all service processes automatically achieving a refrigerant recycling rate of at least 95%. The purity of the recovered refrigerant complies with the SAE J 2099 standard.

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

ASC 6100 G
Entry-level automatic A/C service unit

- Charging cylinder storage capacity: 9 kg
- Automatic refrigerant recycling, oil or UV additive management controlled by load cell
- Purity of recovered refrigerant according to SAE J 2099
- Refrigerant recycling rate: at least 95%
- Forced ventilation with two fans at the rear
- Soft graphic display – can also display special characters
- USB interface
- Load cell, no transport lock necessary
- Optional: dust cover
- **Humidity free storage and feeding system** for fresh oil and UV additive
- Optional: heat belt for the charging cylinder
- Optional: hybrid flushing

ASC 6100 G	Ref. No. 9103303104
Instruction package	Ref. No. 8889900001
Optional:	
WAECO ASC G WiFi KIT	Ref. No. 8885200311
Hybrid flush kit for R134a application	Ref. No. 8885200270
Hybrid flush kit for R1234yf application	Ref. No. 8885200259
Heat belt for the charging cylinder	Ref. No. 8885200277
Dust cover	Ref. No. 4445900081

Scope of delivery: operation manual, used oil container (250 ml), safety kit

R134a
R513A
R1234yf
E/Hybrid

ENTRY UNIT

VISIT US ON YOUTUBE

NOTE
Please order the basic ASC unit and then your choice of hose set separately (you can assign only one of the refrigerants to your device).

CHOOSE THE CONNECTION KIT (APPLICATION FOR R134a, R1234yf OR R513A).

R134a R513A

Every kit includes service couplers,oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500008
Option2: Connection kit **5 m**	Ref. No. 8885500009
Option3: Connection kit **8 m**	Ref. No. 8885500010

R134a R513A

Bus application with POE oil
Connection kit **8 m** incl. service couplers, POE oil, connection port and refrigerant bottle adapter

Ref. No. 8885500014

R1234yf

Every kit includes service couplers, oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500011
Option2: Connection kit **5 m**	Ref. No. 8885500012
Option3: Connection kit **8 m**	Ref. No. 8885500013

ASC 6300 G

AIR CONDITIONING SERVICE UNIT, TRIPLE CERTIFIED, 16 KG

AIR FLOW

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

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.

SOFT GRAPHIC DISPLAY

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

Are you in the market for an A/C service unit for R1234yf refrigerant? Do you want a reliable and solid one from a renowned manufacturer without spending more money than necessary? Then our ASC 6300 G could be just the right thing for you. The unit integrates a wealth of WAECO know-how and experience. Professional A/C service work is performed fully automatically, with little operator effort. All standard ASC-series features are provided, including refrigerant charging and recovery management, personalised charging amount database and automatic vacuum check. An external refrigerant analysis tool can be added as an optional extra. **Besides the connection kit for R1234yf we of course offer the kit for R134a and a special solution for busses, too.** You decide your choice of hose set separately. Please note: You can assign only one of the refrigerants to your device.
The ASC 6300 G optionally features the fresh oil and UV additive feeding system. It allows moisture-free and clean storage of refrigerant oils even over longer periods of time and therefore cuts A/C service costs.

ASC 6300 G
Fully automatic A/C service unit

R134a
R513A
R1234yf
E/Hybrid

- Charging cylinder storage capacity: 16 kg
- Humidity free storage and feeding system for fresh oil and UV additive
- Dustcover included in the delivery kit
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check and charging of leak detection additive
- Complies with SAE J 2099 and SAE J 2788
- Integrated charging amount database
- Swivel and tilt manometer panel
- Heated charging cylinder for high-speed charging
- Special, 8-bearing weighing platform
- 500 ml used oil container for longer change intervals
- USB interface and soft graphic display
- Also suitable for hybrid vehicles if the optional flushing kit for the ASC's internal circuit is installed
- 3 separate weighing cells for UV additive and oil management

ASC 6300 G	Ref. No. 9103303105
Instruction package	Ref. No. 8889900001
Adapter for non-returnable bottles 1/4" HD	Ref. No. 8885400035

Optional:

WAECO ASC G WiFi KIT	Ref. No. 8885200311
Hybrid flush kit for R134a application	Ref. No. 8885200270
Hybrid flush kit for R1234yf application	Ref. No. 8885200259

Scope of delivery: operation manual, used oil container (500 ml), heated refrigerant tank, dust cover, safety kit

NOTE
Please order the basic ASC unit and then your choice of hose set separately (you can assign only one of the refrigerants to your device).

CHOOSE THE CONNECTION KIT (APPLICATION FOR R134a, R1234yf OR R513A).

R134a R513A

Every kit includes service couplers,oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500008
Option2: Connection kit **5 m**	Ref. No. 8885500009
Option3: Connection kit **8 m**	Ref. No. 8885500010

R134a R513A

Bus application with POE oil
Connection kit **8 m** incl. service couplers, POE oil, connection port and refrigerant bottle adapter

Ref. No. 8885500014

R1234yf

Every kit includes service couplers, oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500011
Option2: Connection kit **5 m**	Ref. No. 8885500012
Option3: Connection kit **8 m**	Ref. No. 8885500013

ASC 6400 G

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

AIR FLOW

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

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.

SOFT GRAPHIC DISPLAY

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

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 6400 G perfectly meets these requirements. The **192-litre vacuum pump is exactly designed for these applications.** An additional fluid pump ensures fast refrigerant recharging.

WAECO ASC 6400 G is a fully automatic A/C service unit featuring a triple certification for R134a, R1234yf and R513A.

The modular system requires that you order basic ASC and your choice of hose set separately.

Please note: You can assign only one of the refrigerants to your device.

The ASC 6400 G optionally features the fresh oil and UV additive feeding system. It allows moisture-free and clean storage of refrigerant oils even over longer periods of time and therefore cuts A/C service costs.

ASC 6400 G
Fully automatic A/C service unit

R134a
R513A
R1234yf
E/Hybrid

- Charging cylinder storage capacity: 30 kg, vacuum pump capacity 192 l/min
- Integrated fluid pump for high-volume refrigerant charging
- Vacuum pump designed in cooperation with utility vehicle manufacturers, performance 192 l/min
- Humidity free storage and feeding system for fresh oil and UV additive
- Dustcover included in the delivery kit
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check and charging of leak detection additive
- Complies with SAE J 2099 and SAE J 2788
- Integrated charging amount database
- Personalised charging amount database
- Swivel and tilt manometer panel
- Heated charging cylinder for high-speed charging
- Special, 8-bearing weighing platform
- 500 ml used oil container for longer change intervals
- USB interface and soft graphic display
- Also suitable for hybrid vehicles if the optional flushing kit for the ASC's internal circuit is installed
- 3 separate weighing cells for UV additive and oil management
- Equipped with refrigerant liquid pump
- Prepared for external heat belt, 220 V connection
- Prepared for hybrid vehicles

ASC 6400 G	Ref. No. 9103303106
Instruction package	Ref. No. 8889900001
Adapter for non-returnable bottles 1/4" HD	Ref. No. 8885400035
Optional:	
WAECO ASC G WiFi KIT	Ref. No. 8885200311
Hybrid flush kit for R134a application	Ref. No. 8885200270
Hybrid flush kit for R1234yf application	Ref. No. 8885200259

Scope of delivery: operation manual, used oil container (500 ml), heated refrigerant tank, dust cover, safety kit

NOTE
Please order the basic ASC unit and then your choice of hose set separately (you can assign only one of the refrigerants to your device).

CHOOSE THE CONNECTION KIT (APPLICATION FOR R134a, R1234yf OR R513A).

R134a R513A

Every kit includes service couplers,oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500008
Option2: Connection kit **5 m**	Ref. No. 8885500009
Option3: Connection kit **8 m**	Ref. No. 8885500010

R134a R513A

Bus application with POE oil
Connection kit **8 m** incl. service couplers, POE oil, connection port and refrigerant bottle adapter

Ref. No. 8885500014

R1234yf

Every kit includes service couplers, oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500011
Option2: Connection kit **5 m**	Ref. No. 8885500012
Option3: Connection kit **8 m**	Ref. No. 8885500013

WAECO ASC LOW EMISSION

SAVE COSTS & PROTECT THE ENVIRONMENT

Safety and efficiency: low-emission air conditioning service units meet the highest safety requirements and ensure that practically no refrigerant escapes during the service process. This keeps workplace concentrations low, saves costs and protects the environment.
ASC Low Emission won the 2022 PartsLife environmental award for preventing climate-damaging R134a refrigerant emissions.

HOW TO IDENTIFY A LOW EMISSION UNIT

Most A/C service units are using three process steps: refrigerant recovery, evacuation and recharging. WAECO ASC Low Emission service units are using an additional process step to ensure close to 100% refrigerant recovery. In this process step the vacuum pump teams up with the compressor to also recover the refrigerant contained in the oil. It is collected in the patented used oil container and then drained into the internal storage tank.

The additional step has two major benefits. First, there's virtually no refrigerant lost or escaping into the environment. Second, the exact amount of the recovered refrigerant can be identified in the weighing. This avoids misinterpretation with regard to the tightness of the A/C system, which might otherwise lead to unnecessary trouble-shooting and costly repairs.

Step 1
Refrigerant recovery

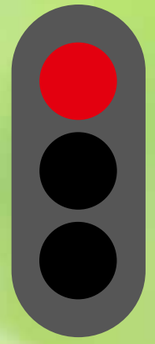
Step 2
Low Emission phase

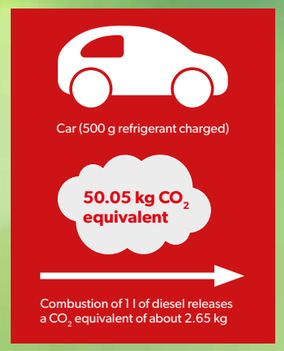
Step 3
Vacuum phase recovery

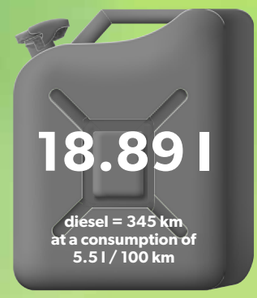
Step 4
Refrigerant recharging

PROTECT THE ENVIRONMENT

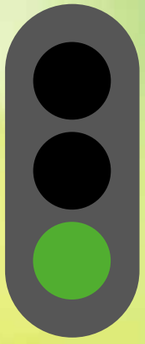
SAVE CO_2 EQUIVALENT BY USING LOW EMISSION

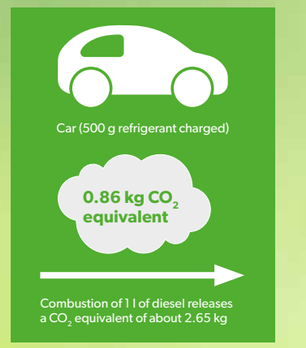






A/C service without Low Emission





A/C service with Low Emission

KEY CHARACTERISTICS OF THE LOW EMISSION CONCEPT

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.

Vacuum pump with control block
ensures deep down evacuation of the A/C system. It pumps the evaporated refrigerant into the internal container of the Low Emission service unit, so no refrigerant can escape into the environment.

TÜV NORD CERTIFIES:

"In summary, the Low Emission series A/C service units of Dometic GmbH release almost no refrigerant into the environment."

GET TO KNOW OUR LOW EMISSION ASCS IN DETAIL!

ASC 6300 G LE

ALSO GREAT AS A DIAGNOSIS TOOL

LOW EMISSION

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

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

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

The ASC 6300 G LE integrates all refrigerant storage components on the weighing platform. That means the complete amount of refrigerant contained in the unit can be recorded and the amount of the recovered refrigerant can be exactly determined. This in turn will tell the operator about potential leaks in the A/C system. The accurate diagnosis function of the ASC 6300 G LE 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. This is why accuracy is so important. LowEmission technology guarantees almost 100% refrigerant recovery rate! Don't waste valuable refrigerant. Opt for the economical and environmentally friendly low-emission technology. It pays off! And it keeps your workplace free of avoidable emissions.

ASC 6300 G LE Low Emission
Fully automatic A/C service unit

R134a
R513A
R1234yf
E/Hybrid
LOW EMISSION

WORLD'S FIRST TRIPLE CERTIFIED A/C UNIT

- Charging cylinder storage capacity: 16 kg
- Humidity free storage and feeding system for fresh oil and UV additive
- Print-out of important service data
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic charging of leak detection additive
- Integrated charging amount database
- Complies with SAE J 2099 and SAE J 2788
- Close to 100% refrigerant recovery
- Virtually 0% service emission
- Operator guidance via large display
- Swivel and tilt manometer panel
- Heated charging cylinder for high-speed charging
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- Also suitable for hybrid vehicles if the optional flushing kit for the ASC's internal circuit is installed
- USB interface and soft graphic display
- 3 separate weighing cells for UV additive and oil management

ASC 6300 G LE Low Emission	Ref. No. 9103303108
Instruction package	Ref. No. 8889900001
Adapter for non-returnable bottles 1/4" HD	Ref. No. 8885400035
Optional:	
WAECO ASC G WiFi KIT	Ref. No. 8885200311
Hybrid flush kit for R134a application	Ref. No. 8885200270
Hybrid flush kit for R1234yf application	Ref. No. 8885200259

Scope of delivery: operating instructions, hermetically closed used oil container, heated refrigerant tank, dust cover, safety kit

NOTE
Please order the basic ASC unit and then your choice of hose set separately (you can assign only one of the refrigerants to your device).

CHOOSE THE CONNECTION KIT (APPLICATION FOR R134a, R1234yf OR R513A).

R134a R513A

Every kit includes service couplers,oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500008
Option2: Connection kit **5 m**	Ref. No. 8885500009
Option3: Connection kit **8 m**	Ref. No. 8885500010

R134a R513A

Bus application with POE oil
Connection kit **8 m** incl. service couplers, POE oil, connection port and refrigerant bottle adapter

Ref. No. 8885500014

R1234yf

Every kit includes service couplers, oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500011
Option2: Connection kit **5 m**	Ref. No. 8885500012
Option3: Connection kit **8 m**	Ref. No. 8885500013

Saving refrigerant with Low Emission equipment pays off –
and reduces emissions in your workspace.

OPTIONAL: HEAT BELT

Saves up to 80% worktime during A/C service on large-volume air conditioning systems.

TRIPLE CERTIFIED

Triple certified for R134a, R1234yf and R513A

LOW EMISSION

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

The ASC 6400 G LE Low Emission A/C service unit offers all the benefits of the WAECO Low Emission technology: close to 100% refrigerant recovery with our well proven four-step process, virtually zero harmful refrigerant emission into the atmosphere.

Integrating a powerful vacuum pump qualifies for highly efficient A/C service on large volumes. This is where the WAECO Low Emission concept pays off in considerable savings!
Don't waste valuable refrigerant. Opt for the economical and environmentally friendly low-emission technology. It pays off! And it keeps your workplace free of avoidable emissions.

ASC 6400 G LE Low Emission
Fully automatic A/C service unit

R134a
R513A
R1234yf
E/Hybrid
LOW EMISSION

FOR BUS, HELICOPTER AND OTHER LARGE A/C VOLUMES

- Charging cylinder storage capacity: 30 kg, vacuum pump capacity 192 l/min
- Humidity free storage and feeding system for fresh oil and UV additive
- Print-out of important service data
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic charging of leak detection additive
- Integrated charging amount database
- Complies with SAE J 2099 and SAE J 2788
- Close to 100% refrigerant recovery
- Virtually 0% service emission
- Swivel and tilt manometer panel
- Heated charging cylinder for high-speed charging
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- Also suitable for hybrid vehicles if the optional flushing kit for the ASC's internal circuit was installed
- USB interface and soft graphic display
- 3 separate weighing cells for UV additive and oil management
- Equipped with refrigerant liquid pump
- Prepared for external heat belt, 220 V connection

ASC 6400 G LE Low Emission	Ref. No. 9103303107
Instruction package	Ref. No. 8889900001
Adapter for non-returnable bottles 1/4" HD	Ref. No. 8885400035
Optional:	
WAECO ASC G WiFi KIT	Ref. No. 8885200311
Hybrid flush kit for R134a application	Ref. No. 8885200270
Hybrid flush kit for R1234yf application	Ref. No. 8885200259

Scope of delivery: Operating instructions, hermetically closed used oil container, heated refrigerant tank, dust cover, safety kit

NOTE
Please order the basic ASC unit and then your choice of hose set separately (you can assign only one of the refrigerants to your device).

CHOOSE THE CONNECTION KIT (APPLICATION FOR R134a, R1234yf OR R513A).

R134a R513A

Every kit includes service couplers,oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500008
Option2: Connection kit **5 m**	Ref. No. 8885500009
Option3: Connection kit **8 m**	Ref. No. 8885500010

R134a R513A

Bus application with POE oil
Connection kit **8 m** incl. service couplers, POE oil, connection port and refrigerant bottle adapter

Ref. No. 8885500014

R1234yf

Every kit includes service couplers, oil/UV test bottles, connection port and refrigerant bottle adapter.
Please choose your required hose length.

Option1: Connection kit **3 m**	Ref. No. 8885500011
Option2: Connection kit **5 m**	Ref. No. 8885500012
Option3: Connection kit **8 m**	Ref. No. 8885500013

ASC 5500 G RPA 2020

LOW EMISSION SERVICE UNIT FOR R1234yf
WITH INTEGRATED GAS IDENTIFIER

OUR "ALL IN ONE" SOLUTION FOR R1234yf

EXTRA SAFETY

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

SWITCH-ON DELAY AND EXTERNAL VENTILATION

R1234yf 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

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

Vehicles with an A/C system filled with R1234yf are already a common case in the workshop today. Brand-bound motor garages, in particular, are obliged to offer service for these systems. Against this backdrop WAECO's AirCon professionals have designed, in close cooperation with the automotive industry, the ASC 5500 G RPA service unit.

As R1234yf is very sensitive to contamination with other refrigerants, the ASC 5500 G RPA was fitted with an integrated analysis tool that checks the refrigerant purity.
Designed inside out for use with R1234yf refrigerant, the ASC 5500 G RPA meets fire regulations and offers all the benefits known from the "classic" models in the ASC series.

ASC 5500 G RPA 2020
LOW EMISSION SERVICE UNIT FOR R1234yf

- Charging cylinder storage capacity: 16 kg, vacuum pump capacity: 5 cars/h
- Optional: humidity free storage and feeding system for fresh oil and UV additive
- **Integrated fully automatic refrigerant analysis function**
- Fully automatic refrigerant recycling, oil and additive management
- Automatic vacuum check
- Automatic leak check prior to service start
- Automatic charging of leak detection additive
- Integrated charging amount database
- Complies with SAE J 2099, 2788 and 2843
- Close to 100% refrigerant recovery
- Operator guidance via large display
- Heated charging cylinder for high-speed charging
- Special, 8-bearing weighing platform
- Special air conditioner flush function
- Also suitable for hybrid vehicles
- Including adapter for non-returnable bottles 1/4" HD
- 3 separate weighing cells for UV additive and oil management

R1234yf
LOW EMISSION
E/Hybrid

ASC 5500 G RPA	Ref. No. 9103301896
Instruction package	Ref. No. 8889900001
Optional:	
WAECO ASC G WiFi KIT	Ref. No. 8885200311
Hybrid flush kit for R1234yf application	Ref. No. 8885200259

Scope of delivery: Service hoses (SAE standard, 3 m), valve adapter for WAECO refrigerant bottles, operating instructions, adapter for 500 ml fresh oil and UV tracer dye bottle, heated refrigerant tank, dust cover, used oil container (500 ml), hermetically closed used oil container, goggles / safety gloves, test bottle UV additive and test bottle WAECO DHO 1234yf

Practical: Innovative used oil container with refrigerant return system

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

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

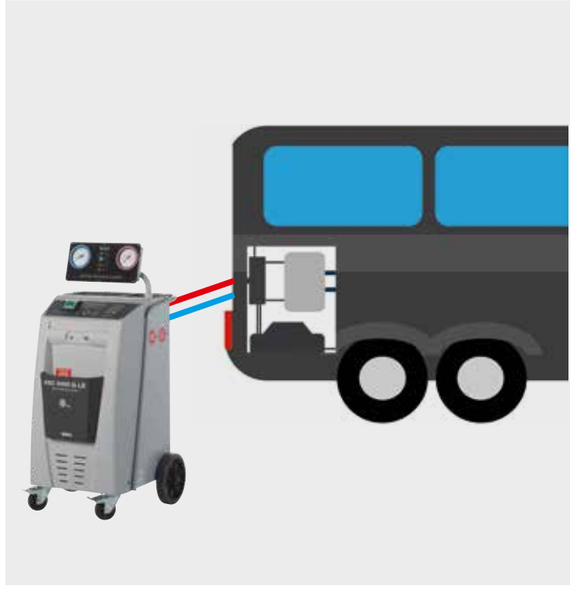
AirCon Service Center R134a/R1234yf/R513A	ASC 6100 G	ASC 6300 G	ASC 6300 G Low Emission	ASC 6400 G	ASC 6400 G Low Emission
Power supply 220/240 V – 50/60 Hz	●	●	●	●	●
Suitable for refrigerant	R134a/R1234yf/R513A	R134a/R1234yf/R513A	R134a/R1234yf/R513A	R134a/R1234yf/R513A	R134a/R1234yf/R513A
Ref. No.	9103303104	9103303105	9103303108	9103303106	9103303107
Recovery / recycling					
Purity of recovered refrigerant according to SAE J 2099	●	●	●	●	●
Refrigerant recovery rate in kg/h	30	30	30	30	30
Vacuum pump capacity	4 cars/h	5 cars/h	5 cars/h	192 l/min	192 l/min
Performance of the hermetic compressor in kW	0.32	0.32	0.32	0.32	0.32
Dry filter capacity in kg	150	150	150	150	150
Refrigerant recycling rate	min. 95%	min. 95%	close to 100%	min. 95%	close to 100%
Can be used as diagnosis tool	no	no	yes	no	yes
Charging					
Charging cylinder kg	10	16	16	30	30
Processes					
Refrigerant analysis	optional	optional	optional	optional	optional
Recovery/recycling	automatic	automatic	automatic	automatic	automatic
Purging of non-condensable gases	automatic/electronic	automatic/electronic	automatic/electronic	automatic/electronic	automatic/electronic
Purging of used oil, evacuation, vaccum check	automatic	automatic	automatic	automatic	automatic
Injection of leak detection additive	automatic	automatic	automatic	automatic	automatic
Injection of oil into the A/C system, refrigerant charging	automatic	automatic	automatic	automatic	automatic
Control panel					
High/low pressure indicated by	Manometer	Manometer	Manometer	Manometer	Manometer
Vacuum indicated on	Display	Display	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		●	●	●	●
Mandatory accessories (to choose)					
Hose kit **3 m** incl. service couplers, oil/UV bottles, connection port and refrigerant bottle adapter	R134a 8885500008 R1234yf 8885500011 R513A 8885500008	R134a 8885500008 R1234yf 8885500011 R513A 8885500008	R134a 8885500008 R1234yf 8885500011 R513A 8885500008	R134a 8885500008 R1234yf 8885500011 R513A 8885500008	R134a 8885500008 R1234yf 8885500011 R513A 8885500008
Hose kit **5 m** incl. service couplers, oil/UV bottles, connection port and refrigerant bottle adapter	R134a 8885500009 R1234yf 8885500012 R513A 8885500009	R134a 8885500009 R1234yf 8885500012 R513A 8885500009	R134a 8885500009 R1234yf 8885500012 R513A 8885500009	R134a 8885500009 R1234yf 8885500012 R513A 8885500009	R134a 8885500009 R1234yf 8885500012 R513A 8885500009
Hose kit **8 m** incl. service couplers, oil/UV bottles, connection port and refrigerant bottle adapter	R134a 8885500010 R1234yf 8885500013 R513A 8885500010	R134a 8885500010 R1234yf 8885500013 R513A 8885500010	R134a 8885500010 R1234yf 8885500013 R513A 8885500010	R134a 8885500010 R1234yf 8885500013 R513A 8885500010	R134a 8885500010 R1234yf 8885500013 R513A 8885500010
Hose kit **8 m** incl. service couplers, POE oil, connection port and refrigerant bottle adapter for bus application	R134a 8885500014 R1234yf on request R513A 8885500014	R134a 8885500014 R1234yf on request R513A 8885500014	R134a 8885500014 R1234yf on request R513A 8885500014	R134a 8885500014 R1234yf on request R513A 8885500014	R134a 8885500014 R1234yf on request R513A 8885500014
Optional accessories and spares					
WAECO ASC G WiFi KIT	8885200311	8885200311	8885200311	8885200311	8885200311
Heat Belt, 60 x 350 mm, 13 cm – 18 cm in diameter	–	–	–	8885300260	8885300260
Heat Belt, 75 x 480 mm, 13 cm – 25 cm in diameter	–	–	–	8885300261	8885300261
Heat Belt, 130 x 300 mm, 13 cm – 18 cm in diameter	–	–	–	8885300262	8885300262
Connection kit for buses	–	–	–	8885400290	8885400290
Service quick couplers only, HD	R134a 8885400027 R1234yf 8885400370	R134a 8885400027 R1234yf 8885400370	R134a 8885400027 R1234yf 8885400370	R134a 8885400027 R1234yf 8885400370	R134a 8885400027 R1234yf 8885400370
Service quick couplers only, ND	R134a 8885400026 R1234yf 8885400369	R134a 8885400026 R1234yf 8885400369	R134a 8885400026 R1234yf 8885400369	R134a 8885400026 R1234yf 8885400369	R134a 8885400026 R1234yf 8885400369
Spare rolls for printer	4445900515	4445900515	4445900515	4445900515	4445900515
Bottle set for ASC series	4440600110	4440600110	4440600110	4440600110	4440600110
Used oil bottle	4440600249	4440600033	4440600131	4440600033	4440600131
Vacuum pump oil	8887200018	8887200018	8887200018	8887200018	8887200018
Universal flush container	R134a 8885200088 R1234yf 8885200272	R134a 8885200088 R1234yf 8885200272	R134a 8885200088 R1234yf 8885200272	R134a 8885200088 R1234yf 8885200272	R134a 8885200088 R1234yf 8885200272
Dust cover	4445900081	4445900081	4445900081	4445900081	4445900081
Dimensions					
W x H x D (mm)	600 x 1040 x 600	560 x 1300 x 650	560 x 1300 x 650	560 x 1300 x 650	560 x 1300 x 650
Weight (kg)	90	100	100	110	110

AirCon Service Center – R1234yf	ASC 5500 G RPA 2020
Power supply 220/240 V – 50/60 Hz	●
Suitable for refrigerant	R1234yf
Ref. No.	9103301896
Recovery / recycling	
Purity of recovered refrigerant according to SAE J 2099	●
Refrigerant recovery rate in kg/h	30
Vacuum pump capacity	5 cars/h
Performance of the hermetic compressor in kW	0.32
Dry filter capacity in kg	150
Refrigerant recycling rate	Close to 100%
Can be used as diagnosis tool	●
Charging	
Charging cylinder (net volume)	16
Processes	
Refrigerant analysis	integrated/automatic
Recovery/recycling	automatic
Purging of non-condensable gases	automatic / electronic
Purging of used oil	automatic
Evacuation	automatic
Vacuum check	automatic
Injection of leak detection additive	automatic
Injection of oil into the A/C system	automatic
Refrigerant charging	automatic
Control panel	
High/low pressure indicated by	Manometer
Vacuum indicated on	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	●
Service and equipment	
WAECO ASC G WiFi KIT	8885200311
Charging hoses HD	4440600175
Charging hoses ND	4440600176
Service quick couplers HD	8885400164
Service quick couplers ND	8885400163
Service filter	4445900221
Spare rolls for printer	4445900515
Bottle set for ASC series	4440600110
Used oil bottle	see page 27
Vaccum pump oil	8887200018
USB stick update ASC G series	4441000174
Universal flush container	8885200272
Replacement filter	8880700246
Adapter R1234yf	8885400343
Dust cover	4445900081
Dimensions	
W x H x D (mm)	560 x 1300 x 650
Weight (kg)	110

HEAT BELT FOR REFRIGERANT COLLECTOR

UP TO 80% LESS RECYCLING TIME FOR A/C SERVICE

One of the key issues in bus and train workshops today is to save as much time as possible to avoid costly downtimes for their customers and cut service costs. The heat belt reduces the service time on bus and train air conditioners up to 80%.



Using conventional practice, servicing high-volume A/C systems takes several hours – about 6 to 10 hours for trains, 3 to 5 hours for buses. The main reason for this is the freezing refrigerant collector in the A/C system. Many workshops are using a fan heater to accelerate the process. Alas, without success as most of the hot air is passing by and won't reach the affected part of the tank.

The WAECO AirCon Service heat belt solution is much faster and more effective.
To prevent freezing of the refrigerant collector, a special heat belt is fitted at the lowest possible point of the collector. The heat belt is switched in line with the compressor of the A/C service unit, so the heating process starts immediately at the beginning of the refrigerant recovery.
The heat belt works in combination with our A/C service units ASC 6400 G and ASC 6400 G LE. Naturally, the highest cost savings are achieved by using it with the Low Emission unit.

OPTIONAL ACCESSORIES FOR BUS APPLICATION

Connection kit for buses

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

- Fits ASC 6400 G and ASC 6400 G LE

Connection kit for buses — Ref. No. 8885400290

Heat belt

Supplied incl. 12 m supply cord with plug, 230 V, 200 W, temperature limiter 60 °C, CE approved, protection class II

Heat belt, 60 x 350 mm, for vertically mounted collectors, 13 cm – 18 cm in diameter — Ref. No. 8885300260
Heat belt, 75 x 480 mm, for vertically mounted collectors, 13 cm – 25 cm in diameter — Ref. No. 8885300261
Heat belt, 130 x 300 mm, for horizontally mounted collector, 13 cm – 18 cm in diameter — Ref. No. 8885300262

VISIT US ON YOUTUBE

Conveniently control your ASC service unit via a WiFi link. All you need is the WAECO ASC G WiFi kit. The compact module simply connects to the USB port on the display of your ASC service unit. Using an existing or self-created WiFi network, it communicates with an internet-capable device of your choice – PC, laptop, tablet or smart phone. The built-in software automatically generates an interactive website, which can be accessed from all commonly used browsers.

The data transmission works in both directions.
That means: You can have service reports sent to your digital device or conveniently send tasks to the service unit from your PC, tablet or smart phone. ASC G WiFi Kit is compatible with all ASC G-series A/C service units and can be retrofitted with ease.

UNIVERSAL USE
WAECO ASC G WiFi-Kit works with all internet-capable devices – desktop PC, laptop, tablet or smart phone

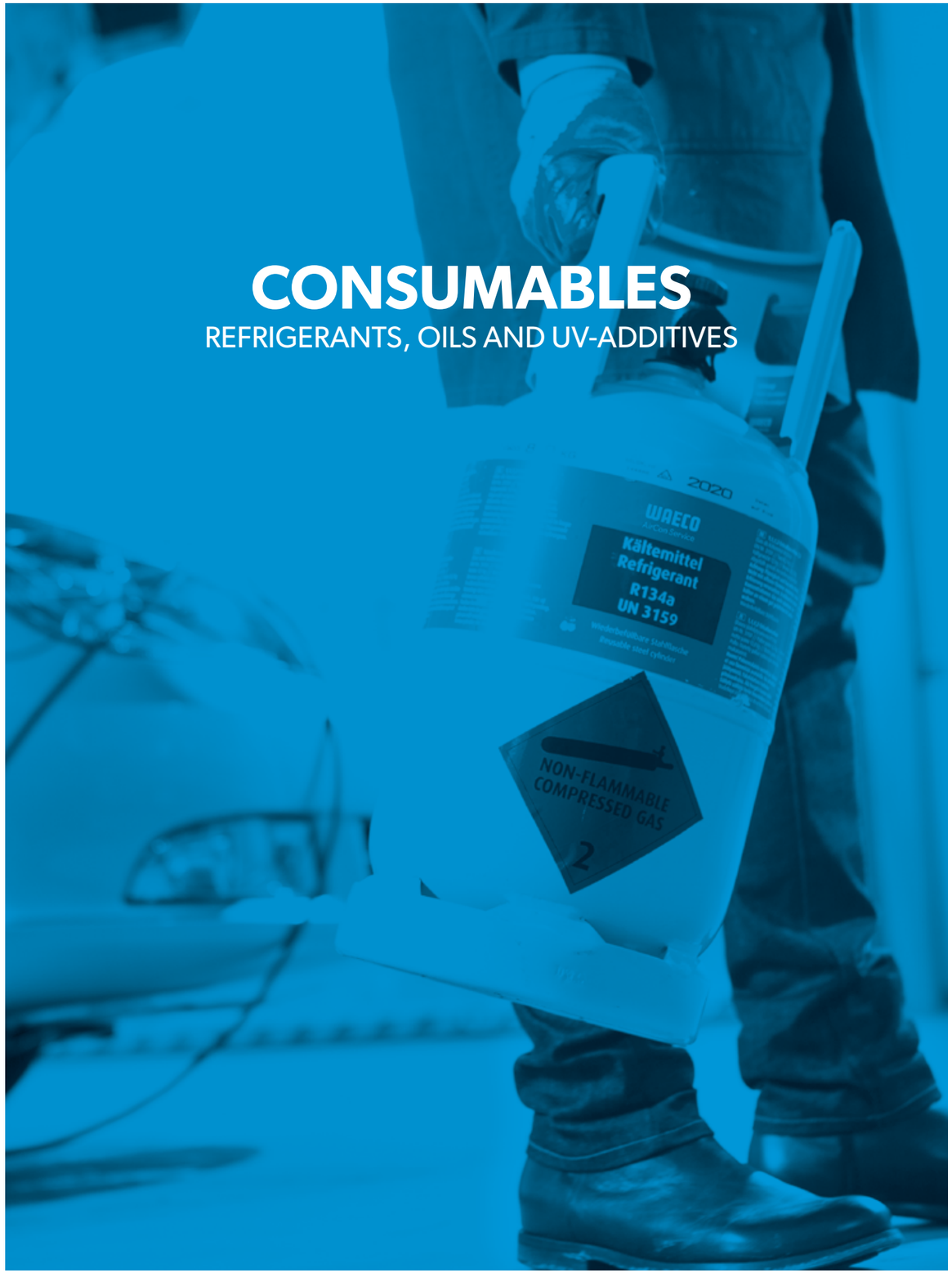
WAECO ASC G WiFi Kit

WiFi kit for WAECO ASC G station with USB connection

- Easy retrofitting via the USB port on the display of the ASC service unit
- Communicates with all internet-capable devices – PC, laptop, tablet, smart phone
- Data transmission via an existing or self-created WiFi network
- Generates a website accessible via all commonly used browsers
- Sends service data from the ASC service unit to the digital device
- Receives tasks for the ASC service unit from the digital device
- Compatible with all ASC G-series A/C service units

Ref. No. 8885200311

VISIT US ON YOUTUBE



CONSUMABLES

REFRIGERANTS, OILS AND UV-ADDITIVES

R134a, R1234yf AND R744 REFRIGERANT IN THE PROVEN REFILLABLE WAECO BOTTLE

Quality by experience: the type-tested refillable WAECO bottle for R134a refrigerant has proven itself in daily workshop use for decades. Naturally, we also offer a version for the new refrigerant R1234yf – clearly recognisable by the signal red colour of the stand-up collar. No confusion possible!

Type-tested refillable steel bottle

R134a

Reusable system with refill safety device. Capacity: 12 kg of R134a 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 (incl. seal)	Ref. No. 8885400129

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

8885400129

Type-tested refillable steel bottle

R1234yf

Reusable system with refill safety device. Capacity: 5 kg of R1234yf 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
Purchase of bottle*	Ref. No. 8887100020
10 kg fill	Ref. No. 8887100050
Purchase of bottle*	Ref. No. 8887100051
Bottle adapter, for large bottle valves	Ref. No. 4440600148
Seal	Ref. No. 4440600244

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

4440600148

4440600244

Type-tested refillable steel bottle

R744

Reusable system with refill safety device. Capacity: 10 kg of R744 refrigerant

- Sturdy design, good stability, stand-up collar and practical extraction valve
- Suitable for charging units in mobile or stationary use

10 kg fill	Ref. No. 8887100053
Purchase of bottle*	Ref. No. 8887100054

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

Charging and vacuum hoses

R134a R1234yf R513A

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

Hose colour: red, length 3000 mm, R134a	Ref. No. 8885100065
Hose colour: blue, length 3000 mm, R134a	Ref. No. 8885100064
Hose colour: red, length 3000 mm, R1234yf	Ref. No. 4440600175
Hose colour: blue, length 3000 mm, R1234yf	Ref. No. 4440600176

Universal flush container

R134a

For easy fitting on A/C service units

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

Universal flush container	Ref. No. 8885200088
Replacement filter	Ref. No. 8880700246

WAECO ASC G WiFi KIT

- Easy retrofitting via the USB port on the display of the ASC service unit
- Communicates with all internet-capable devices – PC, laptop, tablet, smart phone
- Data transmission via an existing or self-created WiFi network
- Generates a website accessible via all commonly used browsers
- Sends service data from the ASC service unit to the digital device
- Receives tasks for the ASC service unit from the digital device
- Compatible with all ASC G-series A/C service units

VISIT US ON YOUTUBE.

WAECO ASC G WiFi KIT	Ref. No. 8885200311

USB stick with software update for the new ASC G-series

Software updates for the new ASC G-series by USB stick

USB stick	Ref. No. 4441000174

Bottle set for ASC series

Bottle set for ASC series

- 250 ml capacity, sales pack: 2 pieces

Bottle set	Ref. No. 4440600110

Spare rolls for printer

Special printer paper for ASC-series thermal printers

- Sales pack: 4 pieces

Spare rolls for printer	Ref. No. 4445900515

Service quick couplers

R134a

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 threat, standard ASC	Ref. No. 8885400026
1 HP with M14 x 1,5" inside threat, standard ASC	Ref. No. 8885400027
3 LP with 3/8" SAE outside threat	Ref. No. 8885400024
3 HP with 3/8" SAE outside threat	Ref. No. 8885400025
2 LP with 1/4" SAE outside threat	Ref. No. 8885400089
2 HP with 1/4" SAE outside threat	Ref. No. 8885400090

Used oil container

Patented used oil container for all Low Emission units

- Specially designed for the low-emission concept

Used oil container	Ref. No. 4440600131
Lid	Ref. No. 4440600133
O-ring	Ref. No. 4443300097
Metal strip used oil bottle	Ref. No. 4442500710

Service filter

R134a R1234yf R513A

High-performance filter for ASC series

- Special connector for easy installation

Drier for ASC models built before 2013	Ref. No. 4440400008
Drier for models built in 2013 or later including G models, ASC 1100 G, ASC 2500 G and ASC 5100 G	Ref. No. 4440400009
Drier for ASC 5000, ASC 5500 G RPA, ASC 5000 G, ASC 5300 G, ASC 5500RPA, ASC 6100 G, ASC 6300 G, ASC 6300 G LE, ASC 6400 G, ASC 6400 G LE	Ref. No. 4445900221

Vacuum pump oil

Vacuum pump oil

- Contains 1 litre; HT 32

Vacuum pump oil	Ref. No. 8887200018

Multi-gas leak detector, suitable for forming gas

R1234yf

Microprocessor controlled sensor electronics with multi-channel signal recognition

- Consistent sensitivity throughout the sensor's lifetime
- Can also be set for heavily contaminated environments (e.g. engine compartment)
- Complies with all international standards relevant for vehicle applications: SAE J 2913 for R1234yf, SAE J 2791 for R134a, EN14624:2005. Identifies all FC- and CFC-based refrigerants and blends

Multi-gas leak detector — Ref. No. 8885100124

Universal flush container

R1234yf

Accelerates the flushing process 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, R1234yf — Ref. No. 8885200272

Spare parts

Replacement filter — Ref. No. 8880700246

Adapter R1234yf, 3/8" SAE — Ref. No. 8885400343

Extension kit (for use on R1234yf air conditioners)

R1234yf

Extension kit for nitrogen pressure gauge and leak detector (8885400092)

Scope of delivery:
High side service coupler, low side service coupler, adapter, HP adapter, LP adapter, blue hose, red hose, O-ring

Nitrogen extension kit — Ref. No. 8885400165

Service quick coupler

R1234yf

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

Service quick coupler HP (WAECO AirCon Service) — Ref. No. 8885400369
Service quick coupler LP (WAECO AirCon Service) — Ref. No. 8885400370

Service quick coupler

R1234yf

For hard-to-access service ports, suitable for Ford

Service quick coupler HP — Ref. No. 8885400340
Service quick coupler LP — Ref. No. 8885400345

Recovery equipment for contaminated refrigerant

R1234yf

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

Recovery equipment — Ref. No. 8885200271

LED violet light UV leak detection lamp OPTI-PRO™ UV

R1234yf

- Powerful, effective and full of new features, catch leaks with ease using our new OPTI-PRO™ UV Plus leak detection light
- Complete with an adjustable focus lens, high/ low lighting, strobe light and fluorescence-enhancing glasses. Leaks will glow brightly when paired with one of our Tracerline dyes

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

LED violet light UV leak detection lamp OPTI-PRO™ UV — Ref. No. 8885300270

4-way manifold

R1234yf

- Complete with hoses and quality couplers
- Ideal for mobile R1234yf charging
- Suitable for R1234yf recovery

4-way manifold — Ref. No. 8885100162

Oil injector

R1234yf

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

COMPRESSOR OILS

PROFESSIONAL TIPS ON OILS

Which oil for which A/C compressor? Always make sure you use the right type! Here is a simple rule from our A/C professionals: If there is PAG oil in the system, recharge with PAG oil, if it's POE oil, fill up with POE 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. In case of doubt always check twice and identify the right viscosity!

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

Double-wall storage container – container-design and function

Bag-in-bottle container system
The hallmark of this container is its double-wall design, which complies with the specifications of the automotive industry in an ideal manner.

Outside: protective metal container
The sturdy, pressure-free metal container protects the laminated bag inside. Pressure compensation for shrinking contents is via a small opening on the top.

Inside: moisture-free laminated bag
The double-layer aluminium laminated bag provides optimal storage for compressor oils or UV dyes. The special charging process as well as the storage in the laminated bag guarantees moisture-free conditions.

Loss-free discharge
The storage bottle is connected to the ASC service unit (on the oil scales port) with a special adapter. This adapter releases the special extraction mechanism of the bottle. The vacuum pump generates a vacuum to discharge the laminated bag, which increasingly contracts in the process. An axially aligned spiral hose ensures complete discharging of the laminated bag.

WAECO patent

1 **Special connection**

2 **Opening in the metal jacket**
to balance the pressure

3 **Laminated bag**
with double-layer aluminium laminate

PROFESSIONAL OIL SYSTEM FOR HUMIDITY-FREE STORAGE

NOW SUITING ALMOST ALL BRANDS

Special cans featuring our professional oil system have been successfully used on WAECO ASC service units for many years. The patented, vapour-tight containers are now also available to customers who do not have a WAECO A/C service unit. By using the new professional oil system with 150 ml cans as well as the matching adapters, the most commonly used third-party service units can now also be equipped with the humidity-free storage system. This is an effective method to keep moisture out of the A/C system and prevent subsequent damage and customer complaints.

MADE FOR UNITS FROM OTHER MANUFACTURERS

VISIT US ON YOUTUBE

Adapter for professional oil system with 150 ml cans

WAECO ASC

Fits for all WAECO ASC models	
Ref. No.	**4440600026** (Sales pack: 1)

AVL

Fits the following models	ADS 310 (R744)
Ref. No.	**8885400372** (Sales pack: 2)

AVL

Fits the following models	ADS 110, ADS 120, ADS 130, ADS 130D
Ref. No.	**8885400354** (Sales pack: 3)

Bosch/Robinair

Fits the following models	AC1234-8, AC1234-7, AC1234-3, AC1x34-3
Ref. No.	**8885400355** (Sales pack: 3)

Bosch/Robinair

Fits the following models	ACS 753, ACS 763, ACS 863, AC1x34-7i, AC1234-7i, AC1234-8i
Ref. No.	**8885400357** (Sales pack: 3)

Ecotechnics

Fits the following models	Eck 3500-up, Eck 3500-HFO, Eck 3900-up, Eck3900-HFO, Eck 4000, Eck 4000-HFO, Eck twin-pro, ECK 1890, ECK 1890-HFO
Ref. No.	**8885400356** (Sales pack: 3)

Universal adapter

Fits the following models	Fits to all Aircon service units with plastic storage system, 250 ml. Tara weight 130 g
Ref. No.	**8885400363** (Sales pack: 3)

Texa

Fits the following models	712R/707R/705R/705R off Road
Ref. No.	**8885400364** (Sales pack: 3)

Texa

Fits the following models	760R, 760R Bus, 770S, 780R, 744
Ref. No.	**8885400353** (Sales pack: 3)

PROFESSIONAL OIL SYSTEM FOR A/C SERVICE UNITS

TecAlliance
Certified Data Supplier

	R134a								
									
OIL TYPE	**PAG**	**PAG**	**PAG**	**PAG**	**PAG**	**PAG**	**POE**	**PAO**	**PAG**
Aftermarket oil	–	–	•	–	•	•	•	•	–
Original oil	•	•	–	•	–	–	–	–	•
Ref. No.	8887200059	8887200021	8887200013	8887200061	8887200014	8887200019	8887200028	8887200017	8887200001
Viscosity	ISO 46	ISO 46	ISO 46	ISO 100	ISO 100	ISO 150	55	ISO 68	ISO 46
Filling volume	500 ml	500 ml	500 ml	500 ml	500 ml	500 ml	500 ml	500 ml	250 ml
Packaging	Profi Oil Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Can
Description	WAECO DHO PS	Denso ND8	WAECO PAG ISO 46	WAECO DHO PR	WAECO PAG ISO 100	WAECO PAG ISO 150	SE55	WAECO PAO ISO 68	WAECO PAG ISO 46
Hybrid / electric vehicles	–	–	–	–	–	–	–	–	–

	R134a								
									
OIL TYPE	**PAG**	**PAG**	**PAG**	**PAG**	**POE**	**POE**	**POE**	**POE**	**PAO**
Aftermarket oil	–	•	•	•	–	–	–	•	•
Original oil	•	–	–	–	•	•	•	–	–
Ref. No.	8887200060	8887200002	8887200008	8887200067	8887200075	8887200072	8887200073	8887200029	8887200009
Viscosity	ISO 100	ISO 100	ISO 150	ISO 46	ISO 68	84	84	55	ISO 68
Filling volume	250 ml	250 ml	250 ml	150 ml	150 ml	150 ml	150 ml	1000 ml	1000 ml
Packaging	Can	Can	Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Can	Canister
Description	WAECO DHO PR	WAECO PAG ISO 100	WAECO PAG ISO 150	WAECO DHO PS	RB68	RB100EV	Denso ND11	SE55	WAECO PAO ISO 68
Hybrid / electric vehicles	–	–	–	–	•	•	•	–	–

	R1234yf								
									
OIL TYPE	**PAG**	**PAG**	**PAG**	**PAG**	**PAG**	**PAG**	**PAG**	**PAG**	**POE**
Aftermarket oil	–	–	–	–	•	–	•	–	–
Original oil	•	•	•	•	–	•	–	•	•
Ref. No.	8887200063	8887200079	8887200039	8887200046	8887200041	8887200076	8887200042	8887200069	8887200075
Viscosity	ISO 46	ISO 46	ISO 46	ISO 100	ISO 46	ISO 46	ISO 46	ISO 46	ISO 68
Filling volume	500 ml	500 ml	500 ml	500 ml	500 ml	250 ml	250 ml	150 ml	150 ml
Packaging	Profi Oil Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Profi Oil Can	Can	Can	Profi Oil Can	Profi Oil Can
Description	WAECO DHO R1234yf	Denso ND12	Sanden SPA2	Valeo VC200yf	WAECO PAG ISO 46yf	Denso ND12	WAECO PAG ISO 46yf	WAECO DHO R1234yf	RB68
Hybrid / electric vehicles	•	•	•	•	•	•	•	•	•

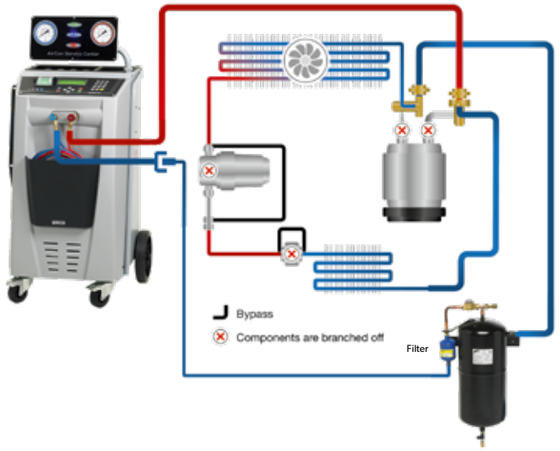
R1234yf	
	
POE	**POE**
–	–
•	•
8887200072	8887200073
84	84
150 ml	150 ml
Profi Oil Can	Profi Oil Can
RB100EV	Denso ND11
•	•

R744

PAG
–
•
8887200078
ISO 68
150 ml
Profi Oil Can
ACC HV
•

CLEAN WORKING – IT PAYS TO FLUSH!

Professional service on automotive A/C systems naturally also includes flushing the system to clear away aggressive substances and contaminants from the refrigerant circuit. Flushing protects all parts of the air conditioner from damage, especially the compressor being its core component.
You will never get a hundred per cent clean refrigerant circuit, this because of the parallel flow evaporator technology commonly used these days. **We strictly recommend you** to add a **chip filter** to the suction line when you flush the system. This will **protect the compressor** and is especially advisable when you've replaced the compressor, as it will keep the remaining particles away from the newly fitted unit.
Important note: The filter (Ref. No. 8880700246) should be replaced after every flushing process (for each vehicle)!



SAFE AND FAST FLUSHING

WITH THE A/C SERVICE UNIT AND THE FLUSH CONTAINER CONNECTED TO IT

- Spares you the time and effort required to preheat the refrigerant bottle
- No need to illegally remove the refill blocking device as would be required with other methods
- No additional equipment (e.g. two refrigerant bottles) required!
- Automatic processes controlled via the A/C service unit avoid operating errors
- Approved by renowned vehicle manufacturers

Some manufacturers offer flushing kits which work without an A/C service unit. Please consider the following facts:
1. Time factor: Refrigerant bottle has to be heated up to 70 °C, takes about 1.5 – 2 hours
2. Extra work: Collector tank must be placed in a cold water container when ambient temperatures are high
3. Safety factor: The refill device and the residual pressure safety device on the refrigerant bottle must be removed for this method; the bottle system has no ground point

Flushing air conditioners

Neccessary flushing equipment – 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, R134a	Ref. No. 8885200088
Universal flush container, R1234yf	Ref. No. 8885200272
Adapter R1234yf, 3/8" SAE	Ref. No. 8885400343
Spare filter (R134a + R1234yf)	Ref. No. 8880700246

A/C flush adapter kit, 17 items

For bypassing expansion valves and dryers

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

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

A/C flush adapter kit	Ref. No. 8885300089
Adapter 3/8" on high-pressure side	Ref. No. 8885400104
Adapter R1234yf, 3/8" SAE	Ref. No. 8885400343

A/C flush adapter kit IV, 65 items

Adapter set for bypassing air conditioning components

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

A/C flush adapter kit IV	Ref. No. 8885300080

Flush adapter set V, 143 items

For use with O-ring and taper connections

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

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

A/C flush adapter kit V	Ref. No. 8885300104

A/C flush adapter kit, 18 items

Adapter set for bypassing air conditioning components

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

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

A/C flush adapter kit III, 5 items

For targeted flushing of condensers and evaporators

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

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

Set of chip filters, 60 items

Filter catches contaminants coming from the system to protect the compressor

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

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

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

Recycle Guard

Separates and removes sealants from A/C systems

SUITABLE FOR A/C SERVICE UNITS OF ALL MAKES

- 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

Universal mounting bracket, fits all A/C service units

Recycle Guard, R134a	Ref. No. 8885200060
Universal mounting bracket	Ref. No. 8880600008
Spare filter	Ref. No. 8885200061

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

Recycle Guard

R1234yf

Separates and removes sealants from A/C systems

Product details see product above

Recycle Guard, R1234yf	Ref. No. 8885200275
Universal mounting bracket	Ref. No. 8880600008
Spare filter	Ref. No. 8885200061

Oil Checker Easy

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

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

Scope of delivery: Oil checker, LP service hose, HP service hose, LP service coupler, HP service coupler, sturdy case

Oil checker Easy, R134a	Ref. No. 8885100163	8885100163
Oil checker Easy, R1234yf	Ref. No. 8885100164	8885100164

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

WAECO SERVICE EQUIPMENT FOR MOBILE A/C SERVICE ON THE SPOT

As a one-stop-shop for A/C workshop equipment, market leader WAECO also offers professional tools for mobile use. Mobile tools not only give you more flexibility in the workshop, they are also ideal for customers expecting an "on the spot" repair service to prevent costly downtimes. Farmers, for instance, wouldn't want to have their machinery repaired in the workshop during the busy harvest season, where every minute of standstill would cost them a fortune.
To address these customer requirements, we have put together a collection of mobile A/C service tools that makes your mobile crew's work easier and more efficient. Your customers will appreciate this and value your company as a partner who is ready to go an extra mile for them.
Our mobile A/C service kit includes all you need for professional A/C service on site: refrigerant bottles, refrigerant scales, a portable recovery unit, a light-weight vacuum pump that is strong enough for utility vehicle air conditioners, and a 4-way manifold stored in a handy workshop case.

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.

Vacuum pump, 42 l/min

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

Specifications

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

Vacuum pump — Ref. No. 8885200257

Vacuum pump, 132 l/min

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

Specifications

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

Vacuum pump — Ref. No. 8885200256

A/C service kit for mobile or workshop use (recovery + evacuation + charging + inspection)

Refrigerant bottle (returnable or non-returnable) + **Recycling bottle** (supplied by refrigerant dealer)

Refrigerant scales
Ref. No. 8885100099

Refrigerant recovery unit
Ref. No. 8885200276

Vacuum pump
Ref. No. 8885200257

4-way manifold for mobile use
Ref. No. 8885100161 (R134a)

Automotive air conditioner

Refrigerant recovery unit

R134a

Automatic recovery of refrigerants
(R 12, R 22, R134a, 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 easily and quickly

Specifications

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

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

Refrigerant recovery unit	Ref. No. 8885200276
Spare filter	Ref. No. 8880700361

2.0 kg charging cylinder for R134a, R 404a and R 407c

R134a

For stationary use in A/C workshops

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

Scope of delivery: Charging cylinder, safety valve, manometer

Charging cylinder	Ref. No. 8885200269

Refrigerant scales

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

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

Refrigerant scales	Ref. No. 8885100099

4-way manifold for mobile use

R134a

- High quality connection for 3/8" SAE
- Manometer class 1
- Not damped
- Can be adjusted by the operator
- Includes safety sight glass and suspension
- Complete kit including hoses and tool

4-way manifold, **R134a, R 404a, R 407c, R 22**	Ref. No. 8885100161

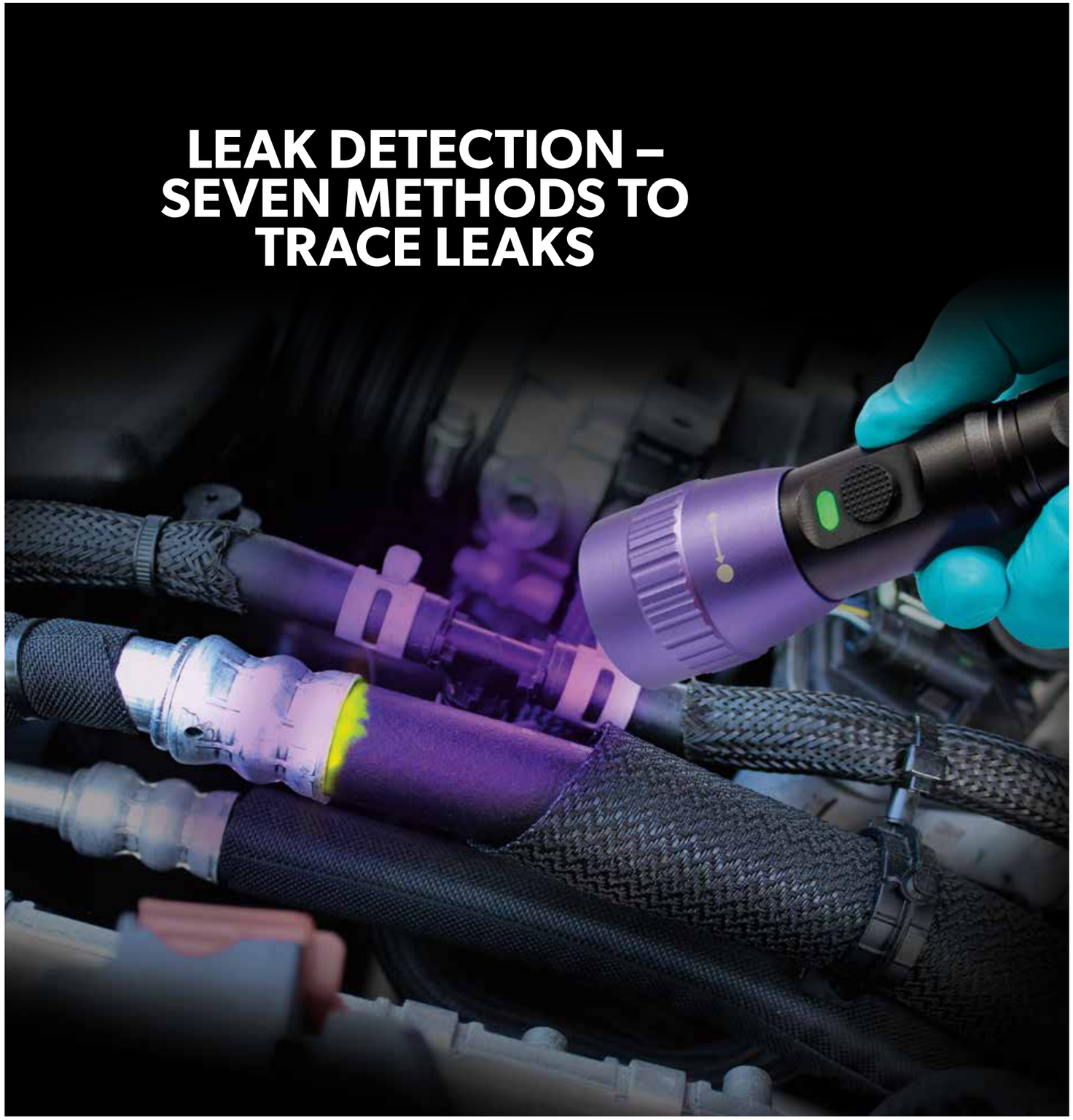
4-way manifold for mobile use

R1234yf

- High quality connection for 3/8" SAE
- Manometer class 1
- Not damped
- Can be adjusted by the operator
- Includes safety sight glass and suspension
- Complete kit including hoses and tool

4-way manifold, **R1234yf**	Ref. No. 8885100162

LEAK DETECTION – SEVEN 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.

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 include a vacuum phase. If there is a leak in the A/C circuit, it is not be possible to create a vacuum and the ASC will stop the procedure.

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.

7 ULTRASONIC LEAK DETECTION

Ultrasonic leak detectors, as the name suggests, identify the sound waves emitted when a refrigerant gas escapes through a leak. The sound is well above the frequencies audible to the human ear. Ultrasonic leak detectors measure the sound level and indicate the corresponding degree of leakage (typically by several LEDs and an additional warning tone). Fitted with an internal noise control system, ultrasonic leak detectors are unaffected by ambient noise, so they are also reliable in noisy workshop surroundings.

LEAKAGE CONTROL – AN ABSOLUTE MUST

The utopia of a maintenance-free A/C system has been abandoned long ago. These days, A/C experts accept the fact that refrigerant losses occur with virtually every system. These losses do not always result from torn ducting or damages through accidents. Even totally intact systems lose some refrigerant – through the ducting and piping system, screw connections, sealing rings, etc. Such losses particularly affect modern systems containing far less refrigerant than former system generations.
The law forbids recharging defective A/C systems – after all, R134a is regarded as an environmental hazard and climate killer and no matter which refrigerant is used in the A/C, the filling amount should be correct. Regular leakage checks are in the interest of the vehicle owner to prevent compressor damage.

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

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

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

UV LEAK DETECTION – ALWAYS WITH THE MATCHING UV ADDITIVE!

A PAG and PAO mixture do not form a consistent oil film. As PAG is heavier, it settles below the PAOs. A phase separation is clearly visible in static condition. During the start-up operation of the A/C system inconsistencies in the mixture can occur and cause damage to the compressor.
Given the clear phase separation of the two oils, there can be no such thing as a universal UV additive. The UV-additive is contained in a carrier oil. If the different oils do not mix, the UV additive will not mix 100% with the two oils either. The consequence is that it “sags through”. If the oil and the UV additive are a perfect match, the UV additive will form a stable and uniform blend with the compressor oil.
Conclusion: Always mix the right oil with the right UV additive. There are no universal solutions.

LED violet light UV leak detection lamp OPTI-PRO™ UV

- The OPTI-PRO™ UV comes complete with a powerful violet light LED and adjustable focus lens to identify leaks with ease
- Comes complete with 3 AAA batteries and fluorescence-enhancing glasses

Scope of delivery: UV lamp, glasses and batteries

UV leak detection lamp — Ref. No. 8885300269

LED violet light UV leak detection lamp OPTI-PRO™ UV

- Powerful, effective and full of new features, catch leaks with ease using our new OPTI-PRO™ UV Plus leak detection light
- Complete with an adjustable focus lens, high/ low lighting, strobe light and fluorescence-enhancing glasses. Leaks will glow brightly when paired with one of our Tracerline dyes

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

UV leak detection lamp — Ref. No. 8885300270

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.

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 CO_2 and R1234yf. TRACER® products contain 10 times more dye than other UV additives, which makes them much more effective when it comes to tracing smaller leaks.

TRACERLINE UV DYES ARE APPROVED BY AUTOMOTIVE MANUFACTURERS

TRACER® UV additive R134a

R134a

For ASC series and other manufacturers' service units

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

TRACER® UV additive, 500 ml for ASC series, **R 134 a** Ref. No. 8887600011
TRACER® UV additive, 150 ml, for other manufacturers' service units, **adapter see page 40, R 134 a** Ref. No. 8887600010

TRACER® UV additive R134a

R134a

For refrigeration and air conditioning systems (R134a/PAG oil)

- TRACER® UV additive for approx. 35 applications (250 ml) when used in combination with ASC A/C service units
- Refill can for all recycling units with integrated UV additive management
- Individual quantities can be used as and when required

TRACER® UV additive, 250 ml, **R 134 a** Ref. No. 8887600001

Hand pump for adding leak detection additives

R134a

For adding TRACER® leak detection additives to the suction side of charged R134a 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 R134a A/C systems, 2 cartridges of additive, vent adapter, hand spindle, label with instructions

Hand pump Ref. No. 8885300266
Spare spindle Ref. No. 9103500683

TRACER® cartridge for approx. 14 car applications

R134a

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 R134a refrigerant in combination with PAG oil
- For approx. 7 Vans/small trucks applications using refrigerant charging amount up to 2.2 kg

TRACER® cartridge Ref. No. 8887600006

TRACER® sticks

R134a

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

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

in combination with PAG oil Ref. No. 8887600005

TRACER® UV additive R1234yf

R1234yf

For ASC series and other manufacturers' service units

- TRACER® UV additive for approx. 71 applications (500 ml) when used in combination with ASC A/C service units
- Based on original SPA2 oil (TP-3825)

TRACER® UV additive, 500 ml for ASC series, **R1234yf** Ref. No. 8887600013
TRACER® UV additive, 150 ml, for other manufacturers' service units, adapter see page 40, **R1234yf** Ref. No. 8887600012
TRACER® UV additive, 100 ml, based on POE oil, suitable for electric and hybrid compressors Ref. No. 8887600007

TRACER® UV additive R1234yf

R1234yf

For refrigeration and air conditioning systems (R1234yf/PAG oil)

- TRACER® UV additive for approx. 35 applications (250 ml) when used in combination with ASC A/C service units
- Refill can for all recycling units with integrated UV additive management
- Individual quantities can be used as and when required
- Based on original SPA2 oil

TRACER® UV additive, 250 ml, **R1234yf** Ref. No. 8887600002

TRACER® for hybrid and electric 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
- POE oil based

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

UV additive injection kit	Ref. No. 8885300267
Spare cartridge, sales pack: 3 pcs.	Ref. No. 8887600004
Adapter for using with R1234yf	Ref. No. TP-9831CS

TRACER® UV additive for R744

- Based on ACC HV
- 150 ml Profi oil system
- For other manufacturers' service units, adapter see page 31

TRACER® UV additive, 150 ml profi oil can, (based on ACC HV)	Ref. No. 8887600009

TRACER® Dyes

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. 8887600003
for cooling water	Ref. No. 8887600014

Safety gloves / Standard full-view goggles / UV glasses

Safety gloves for working with refrigerants and UV additives	Ref. No. 8885400065
Standard full-view goggles for working with refrigerants	Ref. No. 8885400066
UV glasses for leak detection	Ref. No. 8885400366

Multi-gas leak detector, suitable for forming gas

Microprocessor controlled sensor electronics with multi-channel signal recognition

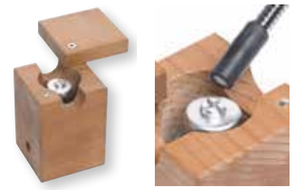
- Consistent sensitivity throughout the sensor's lifetime
- Can also be set for heavily contaminated environments (e.g. engine compartment)
- Complies with all international standards relevant for vehicle applications: SAE J2913 for R1234yf, SAE J2791 for R134a, EN14624:2005. Identifies all FC- and CFC-based refrigerants and blends.

Multi-gas leak detector	Ref. No. 8885100124

R134a and R1234yf 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 R134a and R1234yf



Reference leak	Ref. No. 8885100095

Electronic R134a/R1234yf leak detector

Senses refrigerant concentrations in the ambient air

- Responds to R134a/R1234yf 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

R134a/R1234yf leak detector	Ref. No. 8885100174
Sensor	Ref. No. 9103500684
Filter, sales pack: 20 pcs.	Ref. No. 9103500685

Leak detection spray

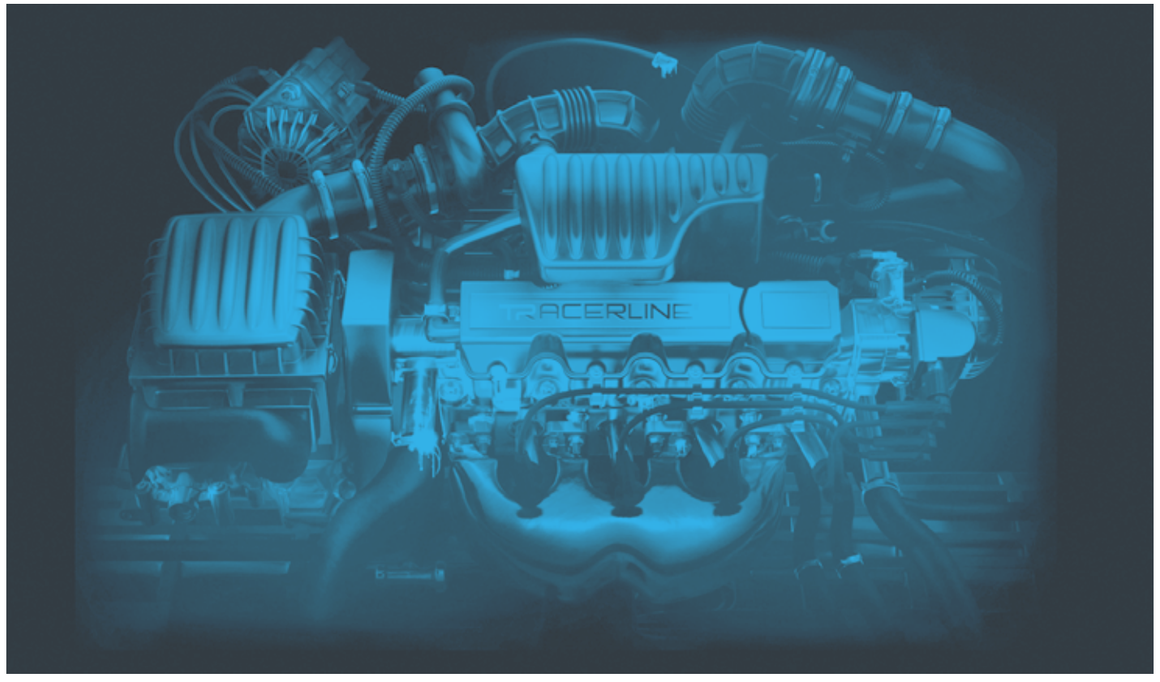
Leak detection by formation of foam on leaky spots in the refrigerant circuit

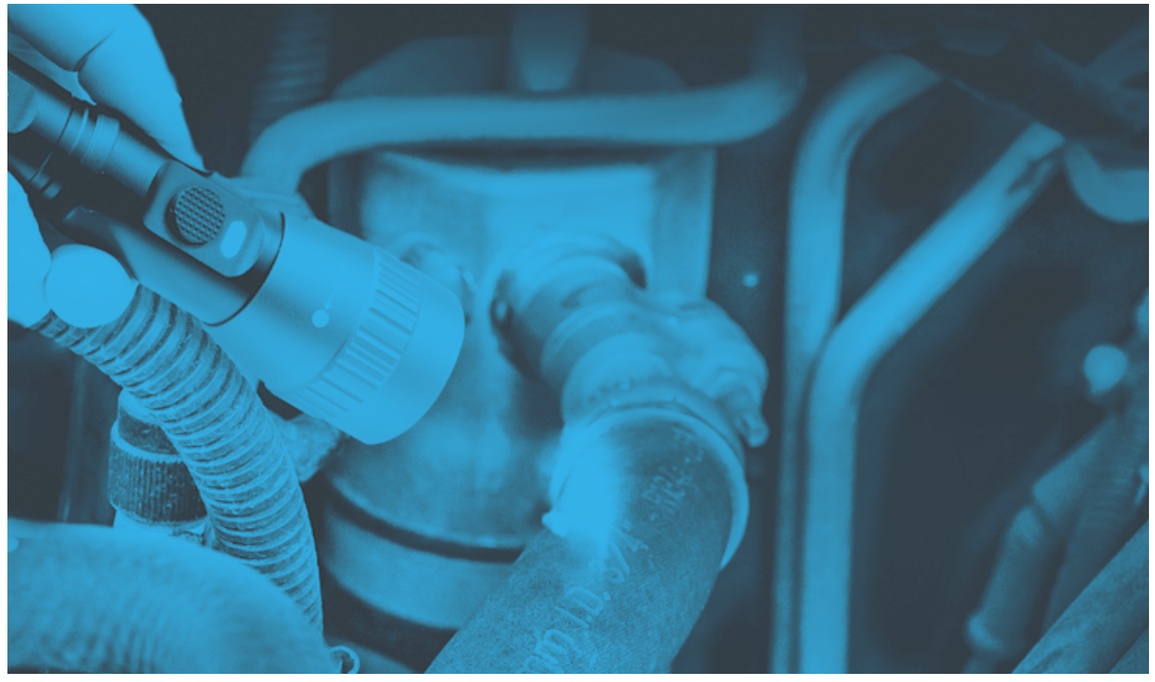
- Suitable for fast detection of larger leaks (e.g. on threaded joints or press fits), easy to use

Leak detection spray, 500 ml	Ref. No. 8887300018

TRACER® UV DYES

	R134a					R1234yf			R134a/R1234yf		R744		
													
OIL TYPE	**PAG**	**PAG**	**PAG**	**PAG**	**PAG**	**PAG (SP-A2)**	**PAG (SP-A2)**	**PAG (SP-A2)**	**POE**	**POE**	**PAG (ACC HV)**	**–**	**–**
Discribtion	TP-3820 TRACER® UV Dye, PAG Oil Based	TP-3820 TRACER® UV Dye, PAG Oil Based	TP-3820 TRACER® UV Dye, PAG Oil Based	TP9860 TRACER® UV Dye, PAG Oil Based	TP3860 TRACER® UV Dye, PAG Oil Based	TP-3825 TRACER® UV Dye, PAG Oil Based	TP-3825 TRACER® UV Dye, PAG Oil Based	TP-3825 TRACER® UV Dye, PAG Oil Based	TP3811 TRACER® UV Dye, POE Based	TP3811 TRACER® UV Dye, POE Based	TRACER® UV Dye, PAG Oil Based	TP-3900 TRACER®UV Dye for Cooling Water	TP3400 TRACER® UV Dye for Oil and Fuel
Refrigerant	R134a	R134a	R134a	R134a	R134a	R1234yf	R1234yf	R1234yf	R134a R1234yf	R134a R1234yf	R744	–	–
Ref. No.	8887600011	8887600001	8887600010	8887600006	8887600005	8887600013	8887600002	8887600012	8887600007	8887600004	8887600009	8887600014	8887600003
Filling volume	500 ml	250 ml	150 ml	3 Cartridges each 14,8 ml	6 Sticks each 2 ml	500 ml	250 ml	150 ml	150 ml	3 Cartridges each 1 ml	150 ml	6 Bottles each 30 ml	6 Bottles each 30 ml
Packaging	Profi Oil Can	Can	Profi Oil Can	Cartridge	Stick	Profi Oil Can	Can	Profi Oil Can	Profi Oil Can	Cartridge	Profi Oil Can	Bottle	Bottle
Hybrid / electric vehicles	–	–	–	–	–	•	•	•	•	•	•	–	–





Nitrogen / forming gas pressure reducer

R134a

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 and forming gas pressure reducer	Ref. No. 8885400136

8885400135

8885400172

Hose set

Nitrogen pressure reducer

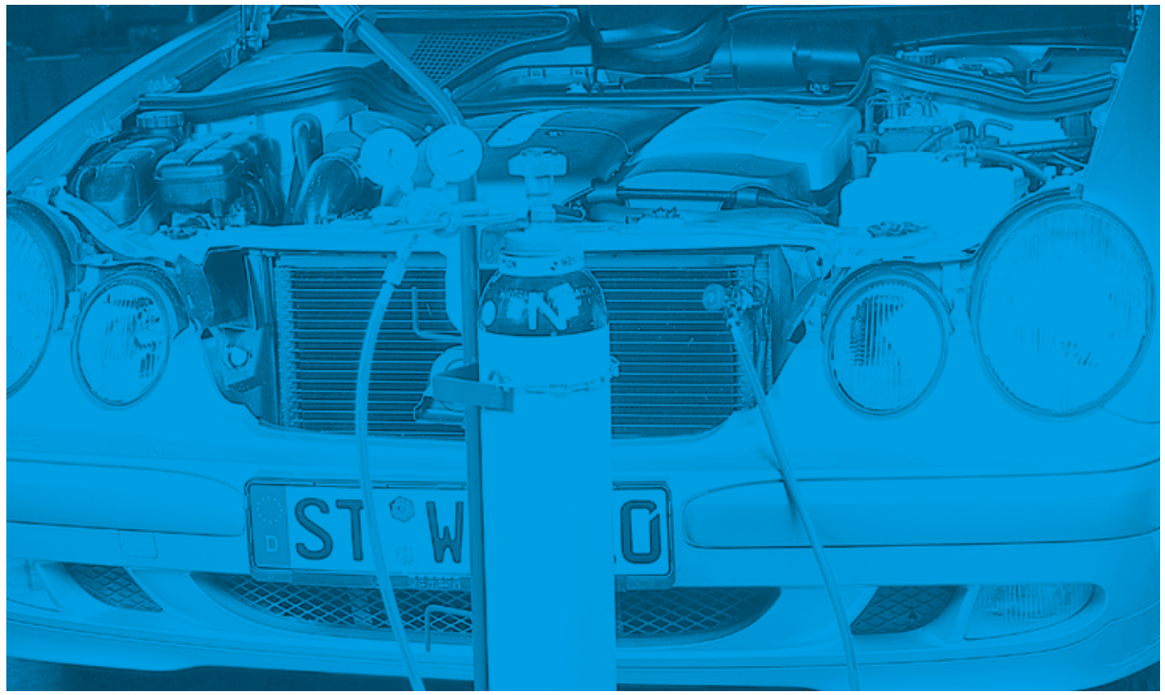
R134a

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

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

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

Pressure reducer	Ref. No. 8885400058



Nitrogen pressure reducer

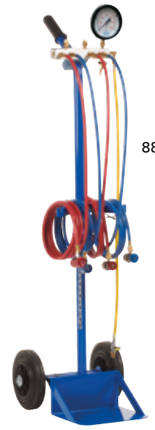
R134a R1234yf

For inspections of air-conditioning evaporators and complete air-conditioning systems for R134 a and R1234yf in installed condition

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

Scope of delivery: 1 x Connection block with Manometer, 2 x Charging hoses R134a Red 3000 mm, 2 x Charging hoses R134a Blue 3000 mm, 1 x Service quick coupler, Red for R 134a, 1 x Service quick coupler, Blue for R 134a, 2 x Charging hoses R1234yf Red 3000 mm, 2 x Charging hoses R1234yf Blue 3000 mm, 1 x Service quick coupler, Red for R1234yf, 1 x Service quick coupler, Blue for R 1234yf, 1 x Charging hoses Yellow 1000 mm with shut-off valve to the pressure reducer

Pressure tester with bottle trolly	Ref. No. 8885400367
Pressure tester without bottle trolly	Ref. No. 8885400368



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8885400368

Nitrogen pressure gauge and leak detector

R134a

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 R134a	Ref. No. 8885400124
Extension kit for R1234yf	Ref. No. 8885400165

Cylinder trolley

For safe transport and storage of 10-litre cylinders

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

Cylinder trolley	Ref. No. 8885400057

SERVICE ON HYBRID/ELECTRIC VEHICLES – 100% CLEAN AND SAFE

The market offers many A/C service units with a hybrid option, but not all of them are suitable for hybrid application. Although everyone in the industry agrees that thorough flushing of the complete system is required when changing from one refrigerant to another.
SAE J 2843 H stipulates a maximum permissible oil cross contamination of 0.1% on the total oil volume. For 150 ml of PAG oil this translates to a mere 0.15 ml (i.e. less than a drop of oil). That said, it won't be enough to just hook on the service hoses and flood the system with refrigerant, as is common practice with some service units available in the market. Refrigerant lines, magnetic valves and service hoses will always contain residual oil, which can lead to cross contamination and dangerous high-voltage exposure.

Dometic WAECO's hybrid concept works as effectively as a high-pressure cleaner. An additional flush container is installed in the service unit and put under vacuum. The refrigerant required for cleaning the unit's internal components is forced through the system several times, under high pressure and in alternating direction.
The result: service hoses, magnetic valves and the lines are compliant with SAE J 2099 (approved by ILK Dresden).

FLUSHING PERFORMANCE APPROVED BY ILK DRESDEN

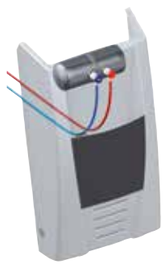
Hybrid flush kit

Special flush container for ASC-series service units

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

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

Hybrid flush kit for ASC 2000 — Ref. No. 8885200261



Hybrid flush kit for R134a application: ASC 1300 G / ASC 2300 G / ASC 2500 G / ASC 3000 G / ASC 3500 G / ASC 6400 G / ASC 6400 G LE / ASC 6300 G / ASC 6300 G LE / ASC 6100 G — Ref. No. 8885200270

Hybrid flush kit for R1234yf application: ASC 5000 / ASC 5000 G / ASC 5300 G / ASC 5000RPA / ASC 5500 G RPA / ASC 6100 G / ASC 6300 G / ASC 6300 G LE / ASC 6400 G / ASC 6400 G LE — Ref. No. 8885200259

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® for hybrid and electric application

UV additive for hybrid/electric vehicles

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

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

UV additive injection — Ref. No. 8885300267
Spare cartridge, sales pack: 3 pcs. — Ref. No. 8887600004
150 ml Profi Oil Can — Ref. No. 8887600007

Compressor oil

- Special compressor oil for hybrid/electric vehicles application

WAECO DHO 1234yf, 500 ml profi oil system — Ref. No. 8887200063
WAECO DHO 1234yf, 150 ml profi oil system — Ref. No. 8887200069
SPA2, 500 ml — Ref. No. 8887200039
RB100EV, 150 ml — Ref. No. 8887200072
ND11, 150 ml — Ref. No. 8887200073
RB68, 150 ml — Ref. No. 8887200075

ACC HV, 150 ml **R744** — Ref. No. 8887200078

Oil 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 (R134a and R1234yf) 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

PROFESSIONAL CLEAN-UP

ELIMINATES BAD 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 chemical substances. The handy unit forces ozone into in 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 a **heavy-duty model** enclosed in a robust stainless steel housing.

Probiotic
AirCon Ready Refresh

57

Chemical liquids
Refresh-o-mat

58

Ozone
Ozone Generators

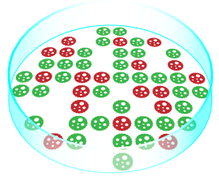
59

FRESH CLIMATE

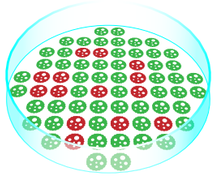
AIRCON CLEANER ON PROBIOTIC BASIS

Probiotic cleaners such as AirCon Ready Refresh work with probiotic microorganisms. They create a healthy microflora that represses pathogen (disease-causing) microorganisms. The undesired organisms are not immediately killed, but prevented from multiplying. Once the probiotic cleaner has been used several times the pathogen germs die of old age, so to speak.

The result: The probiotic microorganisms gain the upper hand in the A/C system and bad odours stand no chance.



Prior to application:
Excess of harmful germs (red) in the A/C system cause unpleasant odours



After application:
Excess of healthy microorganisms (green) – clean air in the vehicle

Aircon Ready Refresh

Aircon cleaner on a probiotic basis

- Extremely easy application
- Handy spray can – no other equipment required
- Represses pathogen (disease-causing) germs
- Removes the course of bad odours from the A/C system

Aircon Ready Refresh, box with twelve cans

Ref. No. 8887400018

VISIT US ON YOUTUBE

AIRCON READY REFRESH
SIMPLE AND CLEAN USAGE

You don´t need any special knowledge or expensive equipment for the application of AirCon Ready Refresh.
The handy spray cans are simply placed on the floor on the passenger´s side.
Please note our instructions so you know exactly what to do:.

- Remove vehicle's interior filter
- Open the air vent
- Set fan to circulating air
- Push passenger seat back
- Turn ignition on so that the fan starts
- Close the window and door on the driver´s side
- Shake AirCon Ready Refresh can
- Activate and eject cleaner by pressing the spray head down hard
- Wait for the complete contents of the can to be ejected (about 5 min.)
- Refit the vehicle's interior filter

SPF Stabilized Probiotic Ferment INSIDE

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

ALSO SUITABLE FOR INTERIOR CLEANING

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

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

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

Effectiveness approved according to EN 1040*

Virucidal effect according to EN 14476

Effectiveness certified according to EN 1040 and EN 14476

* 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. The declaration "virucidal activity against all enveloped viruses" covers all enveloped viruses like HBV, HCV, HIV as well as members of other virus families such as orthomyxoviridae (incl. all human influenza viruses), coronaviridae (like MERS-CoV, SARS-CoV-1 and SARS-CoV-2) and filoviridae including Ebola virus.

Air conditioner cleaner, 1 litre capacity, sufficient for approx. 10 applications	Ref. No. 8887400008

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

INDISPENSABLE TOOLS

THE SPECIALISTS FOR PERFECT WORKMANSHIP

Service quick couplers (see page 60)
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 61)
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 66 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

The identifier helps you to check the quality and presence of R134a or R1234yf 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, **R134a** Ref. No. 8885100135
Miniature identifier, **R1234yf** Ref. No. 8885100165

Dual diagnostic thermometer

For diagnosis on two-zone air conditioners

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

Specifications:

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

Dual diagnostic thermometer Ref. No. 8885100127

Accessories:

Temperature probe

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 thermometer

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 thermometer 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 R134a (low pressure side)

R134a

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

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

Pressure meter Ref. No. 8885100096

Pressure meter R1234yf (low pressure side)

R1234yf

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

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

Pressure meter Ref. No. 8885100146

Service quick coupler HP

R134a

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

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

Service quick coupler HP — Ref. No. 8885400227

Service quick coupler LP

R134a

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

R1234yf

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

- For Ford, Volvo and other vehicles

Service quick coupler HP — Ref. No. 8885400340

Service quick coupler LP

R1234yf

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

Service quick coupler LP — Ref. No. 8885400345

Service quick coupler HP to LP

R134a

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

Solenoid valve opener, 17 – 20 mm

Tool for opening solenoid valves. For use on buses.

- Opens locked refrigerant circuits
- Can be used for 17 – 20 mm solenoid valve coils

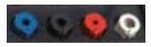
Solenoid valve opener — Ref. No. 8885300259

Spring lock repair and disconnect set, 8 items

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

USB stick with software update for the new ASC G-series

Software updates for the new ASC G-series by USB stick

USB stick — Ref. No. 4441000174

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

Thin-walled sockets for exchanging 8-sided service ports (R134a)

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

For high-pressure side — Ref. No. 8885300033

Valve fitting tools

Fitting tool for Schrader valves used in R134a A/C systems, e.g. on Ford or Japanese vehicles

8885300037 8885300035

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

For Ford or Japanese vehicles — Ref. No. 8885300037
For Ford, French or Japanese vehicles — Ref. No. 8885300035

Hose cutter

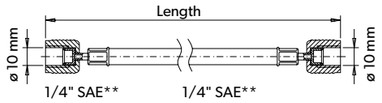
Hose cutter — Ref. No. 8885300002

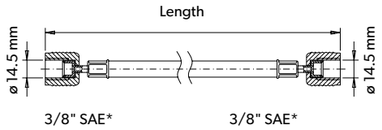
Charging hoses and vacuum hoses

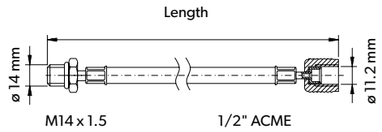
Service hoses in various colours for all applications in A/C fitting and service

- 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

Red hose, 1800 mm	Ref. No. 8885100005
Blue hose, 1800 mm	Ref. No. 8885100006
Yellow hose, 1800 mm	Ref. No. 8885100007
Spare seal (neopren, black)	Ref. No. 8885400022
Spare seal (PTFE, white)	Ref. No. 8885400023
Red hose, 1800 mm	Ref. No. 8885100008
Red hose, 5000 mm	Ref. No. 8885100024
Blue hose, 1800 mm	Ref. No. 8885100009
Blue hose, 5000 mm	Ref. No. 8885100023
Yellow hose, 1800 mm	Ref. No. 8885100010
Spare seal, sales pack: 10 pcs. (neopren, black)	Ref. No. 8881500037
Red hose, 1800 mm	Ref. No. 8885100011
Red hose, 3000 mm, standard ASC	Ref. No. 8885100065
Red hose, 5000 mm	Ref. No. 8885100026
Red hose, 8000 mm	Ref. No. 8885100028
Blue hose, 1800 mm	Ref. No. 8885100012
Blue hose, 3000 mm, standard ASC	Ref. No. 8885100064
Blue hose, 5000 mm	Ref. No. 8885100025
Blue hose, 8000 mm	Ref. No. 8885100027
Spare seal	Ref. No. 8881500034





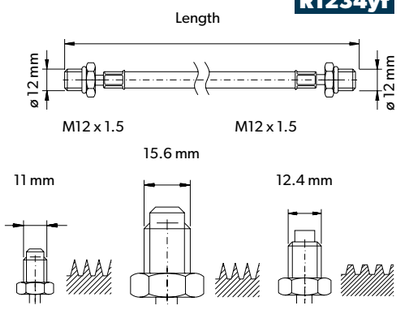


For connection to A/C service units RHS-910, RHS-950 and RHS-1050, the adapter 8885400038 is required.

Charging hoses and vacuum hoses

R1234yf

Red hose, 3000 mm	Ref. No. 4440600175
Blue hose, 3000 mm	Ref. No. 4440600176
Red hose, 5000 mm	Ref. No. 8885100154
Blue hose, 5000 mm	Ref. No. 8885100153
Red hose, 8000 mm	Ref. No. 8885100172
Blue hose, 8000 mm	Ref. No. 8885100173



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

Ref. No.	Description
8885400129	Connection adapter for reusable refrigerant bottle with seal
4440600244	Seal for connection adapter 8885400129
8885400024	Service quick coupler, low pressure, for R134a with 3/8" SAE outside thread
8885400025	Service quick coupler, high pressure, for R134a with 3/8" SAE outside thread
8885400089	Service quick coupler, low pressure, for R134a with 1/4" SAE outside thread
8885400090	Service quick coupler, high pressure, for R134a with 1/4" SAE outside thread

Ref. No.	Description
8885400026	Service quick coupler, low pressure, for R134a with M14 x 1.5 inside thread
8885400027	Service quick coupler, high pressure, for R134a with M14 x 1.5 inside thread
8885400369	Service quick coupler HP (WAECO AirCon Service)
8885400370	Service quick coupler LP (WAECO AirCon Service)
8881500090	Service port low pressure, R134a, with outside thread, for Mercedes-Benz, Porsche, BMW, MAN, Opel
8881500088	Service port low pressure, R134a, with inside thread, for VW, Audi, Ford, Chrysler
8881500087	Service port, high pressure, R134a, with outside thread, for Mercedes-Benz, Porsche, BMW, MAN, Opel
8881500089	Service port, high pressure, R134a, with outside thread, for VW, Audi, Ford, Chrysler
8881500007	Sealing cap for service port, R134a, low pressure
8881500006	Sealing cap for service port, R134a, high pressure
8881500038	Sealing cap for service port, R134a, high pressure, for Japanese A/C systems
8881500039	Sealing cap for service port, R134a, low pressure, for Japanese A/C systems
8885400033	Connection adapter with 1/4" SAE inside thread and connection for R134a service quick coupler, low-pressure side
8885400082	Connection adapter with 1/4" SAE inside thread for high-pressure side
8881500013	90° retrofit adapter for the high-pressure side with 1/4" inside thread
8881500014	90° retrofit adapter for the high-pressure side with 3/16" inside thread
8881500015	90° retrofit adapter for the low-pressure side with 1/4" inside thread
8885400036	Retrofit adapter, straight, comprising one high-pressure and one low-pressure adapter, each with 1/4" inside thread
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
8885400034	Adapter 1/4" x low-pressure side
8885400035	Adapter 1/4" x high-pressure side
4440600148	Adapter for R1234yf refrigerant bottles, for large bottle valves -> HP
4440600244	Seal for connection adapter 4440600148
8885400238	Adapter for R1234yf refrigerant bottles, ½" ACME left -> HP
8885400365	Adapter M12-1.5 x 1/4" SAE
8885400081	Adapter M14-1.5 x 1/4" SAE

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 tool

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

Set of valve cores, 70 items

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

Scope of delivery: 10x Valve cores R134a, 10x Valve cores R134a for Japanese make A/C systems,10x Valve cores R134a for Ford/Opel, 5x Sealing caps for service port R134a high pressure, 5x Sealing caps for service port R134a low pressure, 5x Sealing caps for service port R134a high pressure for Japanese make A/C systems,5x Sealing caps for service port R134a low pressure for Japanese make A/C systems, 5x Service ports high pressure R134a with outside thread or Mercedes-Benz/Porsche BMW/MAN/Opel, 5x Service ports low pressure R134a with inside thread for VW/Audi/Ford/Chrysler, 5x Service ports high pressure R134a with inside thread for VW/Audi/Ford/Chrysler, 5x Service ports low pressure R134a with outside thread for Mercedes-Benz/Porsche/BMW/MAN/Opel

SK25, set of valve cores Ref. No. 8885300116

Original replacement O-rings, 500 items

R134a
R1234yf

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, R134a + R1234yf Ref. No. 8885300264

O-rings now in HNBR70

Original replacement O-rings, 330 items

R134a

For all common types of trucks and vans

(330 items)

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

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

For all common types of trucks and vans

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

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

O-rings for R134a 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 R134a	Ref. No. 8881500001
5 R134a charging valves for Japanese make units	Ref. No. 8881500002
30 O-rings 6 R134a	Ref. No. 8881500008
30 O-rings 8 R134a	Ref. No. 8881500009
30 O-rings 10 R134a	Ref. No. 8881500010
30 O-rings 12 R134a	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 R134a 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 R134a	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

12 different designs / dimensions. The ideal supplement to the SK 31 basic set.

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

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

7 different designs / dimensions. The ideal supplement to the SK 31 basic set.

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

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

For all common types of trucks and vans

- Small and compact can (100 ml) with brush in the cap
- New O-rings need to be coated with oil so that they achieve a good sealing effect when sliding. The threads must also be coated
- Compatible with nearly all lubricants and 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

WAECO EASY REPAIR SETS

FOR ALUMINIUM REFRIGERANT PIPES

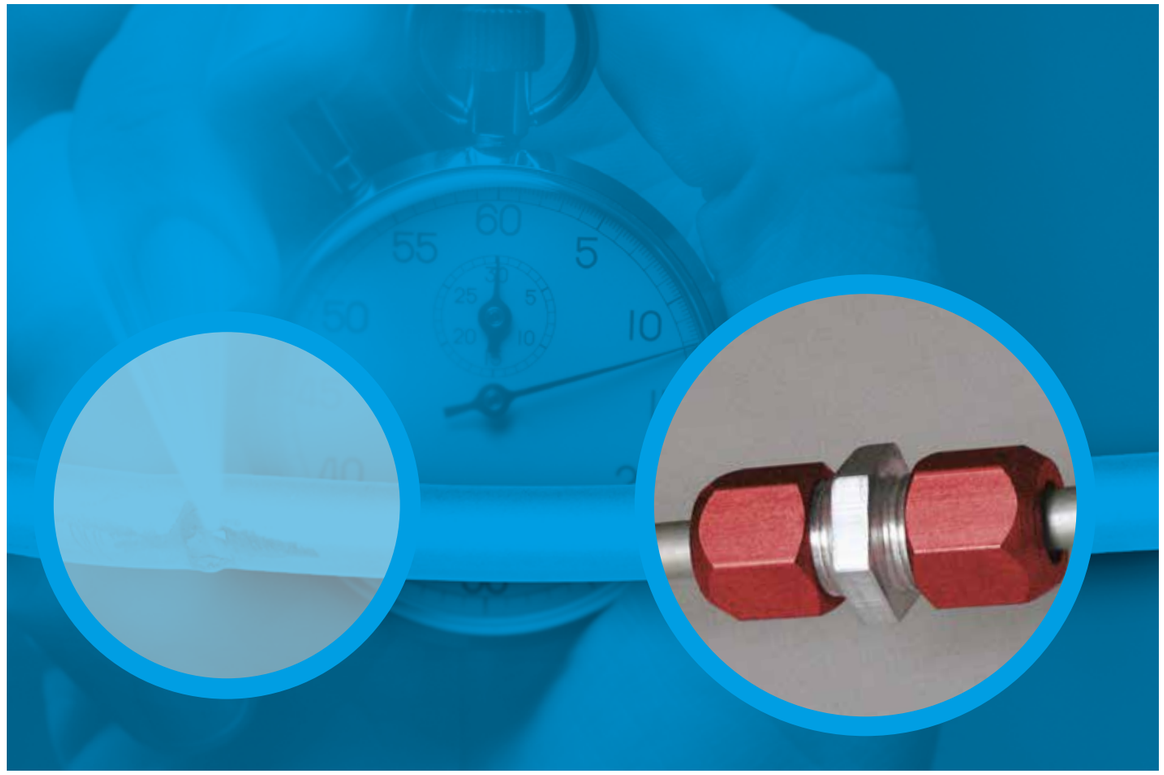
Replacing a damaged refrigerant pipe is a time-consuming task, and it's costly for the customer, too. A much faster alternative in most cases is to repair the defective pipe. Simply cut out the defective section with a saw, insert the matching connection sleeve from the WAECO Easy Repair Set, tighten it and you are done! There's no need for any special tools. You save precious time, and your customer is happy about the much lower bill. Treat your customers to this practical and cost-efficient alternative to a complete replacement!

Easy repair set for aluminium refrigerant pipes

For easy repair of damaged pipes

- Low-cost alternative to fitting a new refrigerant pipe
- No special tools required

Repair kit for 1/2" pipes	Ref. No. 8885400119
Repair kit for 3/8" pipes	Ref. No. 8885400120
Repair kit for 5/16" pipes	Ref. No. 8885400121
Repair kit for 5/8" pipes	Ref. No. 8885400123
Set of seals for 1/2", 3/8", 5/16" pipes	Ref. No. 8885400122



Ref. No.	Description	
8887300007	**Service stickers** Sales pack: 5 pcs.	
8887100007	**Refrigerant** R134a 12 kg Refill only	
8887100019 8887100050	**Refrigerant** R1234yf, 5 kg Refill only R1234yf, 10 kg Refill only	
8887100053	**Refrigerant** R744, 10 kg Refill only	
	R134a original oils	
8887200059	WDHO PS, 500 ml	
8887200021	Denso ND8, 500 ml	
8887200060	WDHO PR, 250 ml	
8887200061	WDHO PR, 500 ml	
	R134a aftermarket	
8887200001	PAG ISO 46, 250 ml	
8887200013	PAG ISO 46, 500 ml	
8887200002	PAG ISO 100, 250 ml	
8887200014	PAG ISO 100, 500 ml	
8887200008	PAG ISO 150, 250 ml	
8887200019	PAG ISO 150, 500 ml	
8887200017	PAO, ISO 68, 500 ml	
8887200028	SE 55, 500 ml	
	R1234yf original oils	
8887200063	WDHO 1234yf, 500 ml	
8887200079	ND12, 500 ml	
8887200076	Denso ND12, 250 ml	
8887200039	SPA2, 500 ml	
8887200046	VC200yf, 500 ml	
	R1234yf aftermarket oils	
8887200041	PAGyf, ISO 46, 250 ml	
8887200042	PAGyf, ISO 46, 500 ml	

Ref. No.	Description	
	R134a/R1234yf original oils, POE oils	
8887200072	RB100 EV, 150 ml	
8887200076	RB68, 150 ml	
8887200073	Denso ND11, 150 ml	
	Prof. oil system for third-party service units*	
PAG oils		
8887200067	WDHO PS, 150 ml	
8887200069	WDHO 1234yf, 150 ml	
POE oils		
8887200072	RB100 EV, 150 ml	
8887200076	RB68, 150 ml	
8887200073	Denso ND11, 150 ml	
8887200009	**Universal PAO ISO 68 compressor oil** 1000 ml	
8887200047	**Universal oil for the coating of O-rings in vehicle A/C systems** 100 ml	
8887200018	**Vacuum pump oil** HT 32, 1000 ml	
8887300018	**Leak detection spray** 500 ml	
	UV TRACER® dye	
8887600010	Profi oil system*, 150 ml, R134a	
8887600011	Profi oil system*, 500 ml, R134a	

* Adapter see page 31

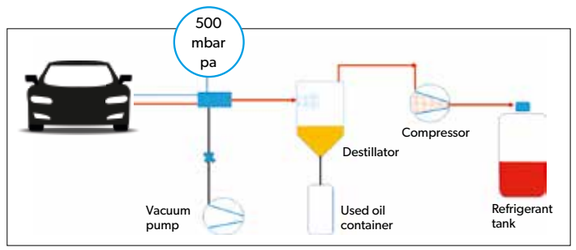
Ref. No.	Description	
8887600001	**TRACER® UV-Additiv R134a** For refrigeration and air conditioning systems (R134a/PAG oil), 250 ml	
8887600006, 3 cartridges of 14 ml	**TRACER® cartridge**	
8887600005	**TRACER® sticks** for R134a in combination with PAG oil sales pack: 6 pcs.	
8887600012	**UV TRACER® dye** Profi oil system*, 150 ml, R 12334yf	
8887200013	Profi oil system*, 500 ml, R1234yf	
8887600002	**TRACER® UV additive R1234yf** For refrigeration and air conditioning systems (R1234yf/PAG oil), 250 ml	
8887600007	**TRACER® UV additive for R134a/R1234yf** POE oil based 150 ml can	
8885300267	**UV additive injection kit for hybrid vehicles**	
8887600004	Spare cartridge	
8887600009	**TRACER® UV additive for R 744** 150 ml can, based on ACC HV oil	

* Adapter see page 31

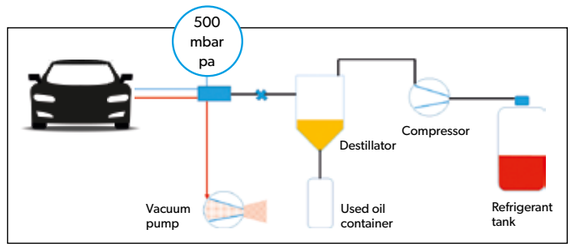
Ref. No.	Description	
8887600003 8887600014	**TRACER® dyes** for oils and fuels, sales pack: 6 pcs. for cooling water sales pack: 6 pcs.	
8887400008	**Air conditioner cleaner** 1000 ml	
8887400018	**Aircon Ready Refresh** Aircon cleaner on a probiotic basis 12 x 150 ml	

PROCESS FLOW DURING REFRIGERANT RECOVERY

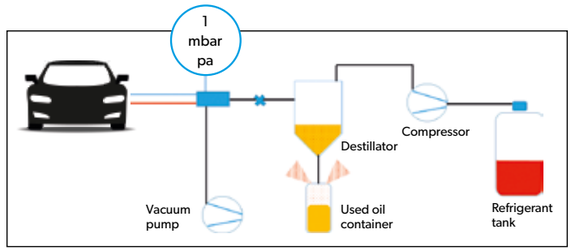
WITHOUT LOW EMISSION



Refrigerant discharge without Low Emission
The A/C system is not emptied completely. The remaining refrigerant generates a residual pressure of about 500 mbar (absolute pressure).

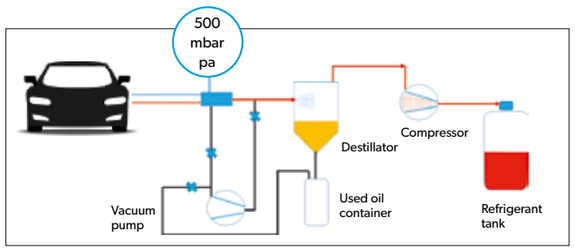


Vacuum phase without Low Emission
The remaining refrigerant (500 mbar) is discharged into the atmosphere via the ventilation side of the vacuum pump. Depending on the service unit this amounts up to 10% of the refrigerant to be recycled.

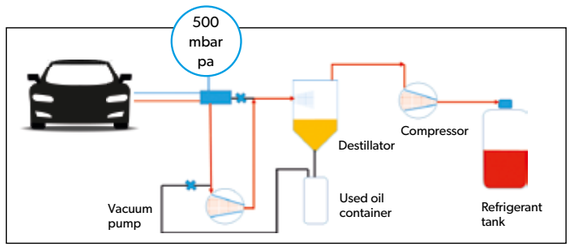


Used oil discharge without Low Emission
The refrigerant contained in the used oil escapes through the vent holes of the used oil container into the environment. Depending on the service unit the loss amounts to 40 – 100 g per service.

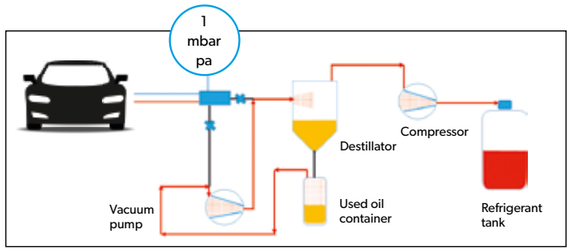
WITH LOW EMISSION



Refrigerant discharge with Low Emission
The compressor discharges the refrigerant from the A/C system up to a residual pressure of about 500 mbar. Then the deep-discharge with the Low Emission technology starts.



Deep-discharge with Low Emission
The compressor teams up with the vacuum pump to achieve a genuine deep-discharge of almost 100%. As a result, virtually no refrigerant is lost.



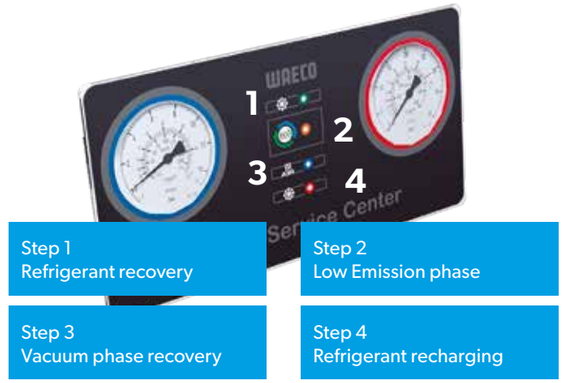
Used oil discharge with Low Emission
The refrigerant is discharged by the vacuum pump from the hermetically sealed used oil container and then returned to the refrigerant tank by the compressor. That means you also recover the refrigerant contained in the used oil.

HOW TO IDENTIFY A LOW EMISSION UNIT –

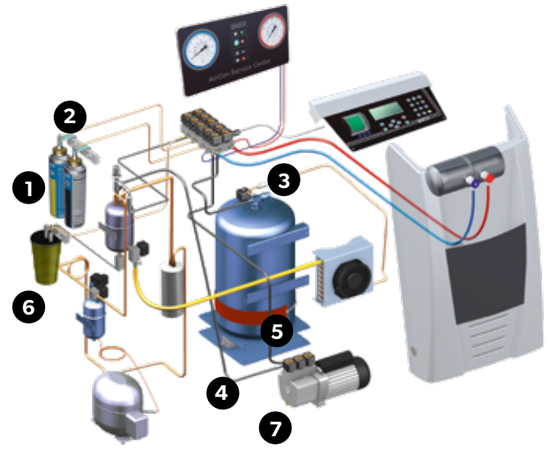
ONLY REAL WITH FOUR-STEP DISCHARGE

Most A/C service units are using three process steps: refrigerant recovery, evacuation and recharging. WAECO ASC Low Emission service units are using an additional process step to ensure close to 100% refrigerant recovery. In this process step the vacuum pump teams up with the compressor to also recover the refrigerant contained in the oil. It is collected in the patented used oil container and then drained into the internal storage tank.

The additional step has two major benefits. First, there's virtually no refrigerant lost or escaping into the environment. Second, the exact amount of the recovered refrigerant can be identified in the weighing. This avoids misinterpretation with regard to the tightness of the A/C system, which would otherwise lead to unnecessary trouble-shooting and costly repairs.



1 Patented, professional feeding system for fresh oil and UV additive
2 3 separate weighing cells for oil management (used oil / fresh oil / UV additive)
3 Refrigerant tank with preassembled condenser and fan for accurate indication of the recovered amount of refrigerant
4 Special, 8-bearing weighing platform with high-capacity weighing cell (100 kg load capacity). User friendly: no calibration needed
5 Increased pressure due to heating band on the refrigerant tank for complete charging of the A/C system even at high ambient temperature
6 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
7 Vacuum phase
The vacuum pump ensures deep down evacuation of the A/C system. It pumps the evaporated refrigerant into the internal container of the Low Emission service unit, so no refrigerant can escape into the environment.



WHAT ARE THE THINGS TO NOTE WHEN DEALING WITH R1234yf?

The “new” R1234yf refrigerant has a different chemical composition and thus other properties than R134a. The service unit’s pressurised containers, hoses, gaskets and manometers have to be adapted accordingly. R1234yf may never be processed in service units designed for use with R134a. 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 R1234yf?

A/C workshops are most likely to have at least two different service units, because R134a and R1234yf must not be mixed. To avoid confusion, the units should be clearly recognisable. R1234yf service units are subject to special safety regulations, because the “new” refrigerant must not escape into the atmosphere.
Therefore, a suitable R1234yf 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 R134a units to avoid the risk of confusion when connecting the service equipment. R1234yf 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 R134a.

ARE THERE SPECIAL PAG OILS AND UV ADDITIVES FOR R1234yf A/C SYSTEMS?

R1234yf A/C systems require special, perfectly coordinated compressor oils and UV additives, which must be stored in moisture-free conditions. We recommend the bottle system from WAECO.

WHY SHOULD I NEVER MIX DIFFERENT REFRIGERANTS?

Standard R134a A/C systems are not identical from a technological point of view to A/C systems charged with R1234yf. The components are always customised and approved for the refrigerant to be used. R1234yf A/C systems have some components fitted outside the vehicle cabin for safety reasons. Some of these safety measures are missing on R134a A/C systems. **When servicing a vehicle A/C system, always use the refrigerant approved for the system at hand!**

TROUBLESHOOTING CHART FOR VEHICLE AIR CONDITIONING SYSTEMS

Introduction
The professional tips chart provides help and support when troubleshooting the air conditioning systems.
This clearly arranged diagnosis guide will help you find the typical functional errors that may occur in air conditioning systems for vehicles.

Legend
AC = air conditioning
LP = suction pressure
HP = high pressure
V = compressor with suction pressure regulator
F = compressor with constant displacement

How to use the chart
Professional tips can only be performed properly if the appropriate workshop equipment is available. The required equipment can be found in our workshop catalogue. Follow the operations listed on the following pages step by step. Only then can you be certain to achieve a good result from your troubleshooting efforts.

Step 1 Test conditions/preparations

Step 2 Performance test air conditioning system

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

Base table A	The air conditioning system does not cool
Base table B	The air conditioning system produces an inappropriate noise
Base table C	The air conditioning system produces an odour

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

Worksheet 1	Insufficient heat dissipation via the condenser
Worksheet 2	The refrigerant quantity is incorrect and non-condensible gases or moisture occur in the system
Worksheet 3	Faulty expansion valve
Worksheet 4	Fault in the suction pressure regulator (V5)
Worksheet 5	Fault in the compressor’s electrical magnetic coupling, i.e. the coupling slips or does not engage
Worksheet 6	The suction and pressure lines on the compressor are reversed
Worksheet 7	Stoppage in the refrigerant circuit
Worksheet 8	Ice formation in the evaporator
Worksheet 9	Faulty compressor
Worksheet 10	Penetration of hot air into the compartment/circulation of hot water in the heating system’s heat exchanger

Table

Step 1

TEST CONDITIONS/PRELIMINARY STEPS

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

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

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

Start the air conditioning system by pressing air conditioning button.

Select fan level 2 or 3.

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

If the cabin temperature is higher than the outside temperature.

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

If the cabin temperature is lower than the room temperature.

Close windows and doors.

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

Then carry out a performance check on the air conditioner.

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

Step 2

PERFORMANCE VERIFICATION OF AIR CONDITIONERS

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

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

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

Temperature table

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

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

For problem-solving, use base table A.

Does the air conditioning system have an abnormally loud noise?

For problem-solving, use base table B.

Does the air conditioner cause an unpleasant smell?

For problem-solving, use base table C.

The air conditioning unit works flawlessly.

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

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**			
	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".

EXAMPLE OF USING THE DIAGNOSIS SHEET

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

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

Manometer with large deviation

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 (▲)

**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**

Step 3

PROFESSIONAL TIPS

Cause

Solution

Low pressure too high

High pressure
normal (I) 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 (I)

- (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 (I)
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)

Step 3

BASE TABLE A – PROFESSIONAL TIPS

Cause	Solution
 Low pressure high (H) or normal (I) — High pressure too high	• Possible normal operating pressure at high ambient temperature (> 43 °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 °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

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.

Step 3

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.

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

Step 3

BASE TABLE C – THE AIR CONDITIONING SYSTEM PRODUCES AN ODOUR

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

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“).

Step 4

Worksheet 2

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

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

Step 4

Worksheet 3

THE EXPANSION VALVE IS DEFECTIVE

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

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

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

Cause	Solution
The expansion valve's bulb filling is defective.	Draining the refrigerant from the air conditioning system.
The mechanism in the expansion valve is blocked	Replacing the expansion valve.
	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 amount of refrigerant and oil, if there has been an evacuation of the refrigerant (see the assembly instructions or the refrigerant table).

Step 4

Worksheet 4

THE COMPRESSOR'S SUCTION PRESSURE REGULATOR IS DEFECTIVE

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

DID YOU KNOW …
… the cabin filter has influence on the cooling capacity?

Step 4

Worksheet 5

THE COMPRESSOR'S MAGNETIC COUPLING "SLIPS" OR DOES NOT ENGAGE

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

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

Step 4

Worksheet 6

THE HIGH AND LOW PRESSURE LINES ON THE COMPRESSOR ARE REVERSED

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

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.

Step 4

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?

Step 4

Worksheet 8

ICE FORMATION ON THE EVAPORATOR

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

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.

Step 4

Worksheet 9

DEFECTIVE COMPRESSOR

Cause	Solution
The suction pressure regulator in the compressor (V) is defective.	Draining the refrigerant from the air conditioning system.
The compressor has cut out.	Disassembly of the compressor.
	Draining the compressor oil and checking for any mechanical wear on the compressor. If shavings (wear) can be seen in the compressor oil, please contact WAECO's service technician.
	Installing a new compressor.
	Installing a new drying unit.
	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).

Step 4

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°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 °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)

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 valuesat 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.

GENERAL ASSEMBLY INSTRUCTIONS

CHECKS THAT MUST BE CARRIED OUT BEFORE ASSEMBLY
Since the AC system works in conjunction with the car's various parts, the following settings and functions must be checked before installation:
1. The idle speed must be the preconfigured speed
2. The output voltage from the generator must be 14-15 V
3. The heater fan must perform flawlessly in all operating modes
4. The heating valves must function flawlessly
5. All electrically operated components in the car must be checked to ensure that they are functioning properly

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

COMPRESSOR OIL
Note! Only synthetic oil may be used with R134a refrigerant, never mineral oil.
Most compressors are already filled up with the correct quantity from the beginning. Check the oil level during maintenance and repair and replenish if necessary.

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

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

TURN ON THE AC SYSTEM
(The AC system must be filled up)
- Rotate the compressor five revolutions by hand to distribute the oil in it
- Start the engine, let it idle and turn the AC system quickly on and off a few times
- Turn on the AC system and let the engine idle for a few minutes

IS R1234yf DANGEROUS?

R1234yf 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 is it closed all around and fresh air from the blower is flowing through it. This is why the front cover and the rear cover of the drier filter are fitted with contact switches, which are activated when the lids are opened. Simultaneously, the system monitors the blower speeds of the rear housing fan and the vacuum pump fan on the side of the unit. If the housing is opened, or if one of the fans fails, the voltage supply to the unit is automatically interrupted and an alarm sounds from the external box on the rear.

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

For safety reasons, the unit, after having been switched on, is flooded through with fresh air for 35 seconds before voltage is passed on to the system. Should a flammable mixture have formed anywhere in the housing – which may have been caused by a leak for example – this precaution makes sure the mixture won't be ignited by an electric spark.

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

During the software test almost all possible operations of the unit are subjected to a test run. At the same time all components are preheated to get them to their ideal working temperature. This will, among other things, improve the charging and recovery accuracy of the machine. Additionally, the system performs a daily internal leak check whereby several components and connecting pipes are checked for tightness, first using vacuum, then with refrigerant. If pressure drops are detected in the process the unit won't start operation.

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

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

HOW MUCH REFRIGERANT SHOULD I CHARGE INTO THE INTERNAL TANK?

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

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

CAN I ACCIDENTALLY CONFUSE 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 5500 G RPA has a connection on the rear to which you can connect a separately available disposal system. Once the disposal is complete you can do a cross check by connecting a bottle of fresh refrigerant (shake before use) to the service station and repeat the original process. The analysis should read "OK" now.

WHY DOES THE REFRIGERANT CHARGING PROCESS TAKE SO LONG?

According to the risk analysis of the German TÜV the service unit may only be used for charging A/C systems that have no leaks.
To meet this requirement the A/C system is first put under vacuum (negative pressure) and checked for pressure changes for a certain period of time. Then a little amount of refrigerant is added to generate positive pressure, and the system is again monitored at a constant pressure level. If the pressure rises or falls in either of the two phases you will know that the A/C system leaks. In that case the service unit will interrupt the process and display an error message.
To guarantee accurate charging at all times it is then necessary to recover the pre-charged amount of refrigerant and completely evacuate the A/C system before. Once this has been done you can go ahead and charge the required amount of refrigerant.

HOW DO I SET ANOTHER LANGUAGE?

The service units are set to English in the factory settings. To set another language simply use the arrow keys to go up/down to menu item “Other Selections” and confirm with ENTER to access the next menu. Then use the arrow keys to go down right to the bottom to “Service”, again confirm with ENTER and key in the code 5264. You can select the desired language with the arrow keys and confirm with ENTER. By pressing the STOP button several times you get back to the basic menu.

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

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

ASC BENEFITS AT A GLANCE

PROFITABLE, ECO-FRIENDLY, SAFE AND SECURE

TRULY AUTOMATIC UNITS – OFTEN COPIED, NEVER MATCHED!
Units with manual control valves involve the risk of erroneously charging the air conditioner from the low pressure side. Automatic units are safer, they have no manual control valves.

HUMIDITY FREE STORAGE AND FEEDING SYSTEM FOR FRESH OIL AND UV ADDITIVE
Fresh oil and UV additive are stored in aluminium laminated bags contained in protective metal cylinders, this keeps moisture out.

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

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

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

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

CUSTOMISED FLUSHING PROCESS AND FLUSH BOTTLE (optional)
The efficient and safe flushing process was developed in consultation with the automotive industry.

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

PROTECTED ACCESS WITH INDIVIDUAL USER CODES
Up to 10 user names can be programmed in combination with individual PIN codes.

OPERATIONAL SOFTWARE IN MORE THAN 20 LANGUAGES
de, en, fr, it, sr, hr, sl, tr, nl, da, no, sv, pt, gl, ca, es, eu, fi, et, cs, ro, pl, hu, ru, zh

DESIGNED FOR WORLDWIDE USE
The ASC range includes service units ready for connection to 230 V/50-60 Hz and all models are available with country-specific mains plugs.

USER-FRIENDLY DISPLAY UNITS
The swivel and tilt manometer unit is easy to read from every angle.

WAECO AIRCON PARTS

ENGINEERING AND PORTFOLIO MANAGEMENT IN GERMANY

WAECO – THE NATURAL CHOICE FOR AIRCON PARTS
The development and management of the WAECO AirCon Parts range is in the hands of experienced WAECO specialists who maintain excellent contacts with the automotive industry and all major trade associations. Thanks to the accurate work of our engineers and the careful manufacturing by hand-picked, long-term production partners, you can rest assured that each part fits like a glove and can be installed without hassle in your workshop.

We are 100% convinced by the quality of our offer. All products in the WAECO AirCon Parts range are inspected on a regular basis by recognized, independent institutes – and they score excellent results in the tests! In the unlikely event of defects we will refund the material and the labour costs according to the commonly used Eurotax rates. You can take our word for it.

QUALITY

An in-house experimental lab, the cooperation with specialized manufacturers as well as comprehensive product testing ensure that WAECO AirCon Parts are just as easy to install as the original they replace.

KNOW-HOW

Dometic WAECO has been known as the specialist in AirCon solutions for all kinds of vehicles for over 40 years. Your will benefit from our wealth of know-how with every original replacement part you order from us.

TESTING

WAECO AirCon Parts are inspected by independent technical institutes (e.g. TWK Karlsruhe) – with excellent results. Their high quality level is also documented by the certification according to Commission Regulation (EU) No. 461/2010.

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