
TO: ALL MERCEDES-BENZ PASSENGER CAR DEALERS
DATE: October 1996 (Supersedes S. I. 83/81B, September 1994) **REF. NO.** 83/83

Revision: *Additional information on A/C systems (York and Delco compressors) for conversion of R12 to R134a refrigerant. New retrofit label.*
SUBJECT: ALL MODELS USING R12 REFRIGERANT IN VEHICLES
USING NIPPONDENSO, YORK AND DELCO COMPRESSORS
CONVERSION OF R12 TO ENVIRONMENTALLY FRIENDLY R134A

With the introduction of model 140 in model year 1992, Mercedes-Benz started to use environmentally safe refrigerant R134a. Beginning in 1991, all other models (except 201) were designed to use refrigerant R134a.

Due to the increasingly scarce availability and 1995 production phased of refrigerant R12, models using Nippondenso, York and Delco compressors may be converted for use with refrigerant R134a.

Important:

Mercedes-Benz does not approve of the conversion to any other refrigerant except R134a because of durability and safety concerns.

In case of a necessary repair under the terms of the Limited New Vehicle Warranty or the Spare Parts Warranty **and** if R12 is no longer available, a warranty claim for the conversion can be submitted.

In all other cases, any conversion to R134a is the responsibility of the vehicle owner.

In performing this conversion, the following procedures must be followed.

Note:

The procedure and label in this SI meet Federal EPA requirements per 40CFR Part 82 at 61 FR 25585.

- A. Preparation/Testing of the A/C system**
- B. Testing A/C System for Refrigerant Leaks**
- C. Removal of Mineral Oil from A/C System**
- D. Replacing Receiver/Drier**
- E. Installation of Service Valves**

F. Filling A/C System with R134a Refrigerant

G. Affixing new R134a Retrofit Label

H. Performing Final Function Test of A/C System

Before proceeding with the conversion to refrigerant R134a, park vehicle inside workshop and allow vehicle to attain workshop temperature (approx. 70°F).

CAUTION!

Wear protective eye-wear when working on the A/C system.

A. Preparation/Testing of the A/C system

1. Attach A/C pressure gauges to the low- and high-side of the A/C system and verify the proper function and pressures of the A/C system.
2. Run engine at idle.
3. Press  or  button.
4. Check/verify refrigerant fill level capacity (see Maintenance Manual, Job No. 8312).

B. Testing A/C System for Refrigerant Leaks

1. If A/C system is void of any R12 refrigerant or the compressor will not engage, check refrigerant compressor for binding by rotating A/C compressor by hand.
2. If A/C compressor binding is not present, fill A/C system with fresh/recycled refrigerant and perform refrigerant leak test. (Figure 1).

CAUTION!

Observe specifications on Fill Capacity Label.

3. Check for proper operation of A/C system.

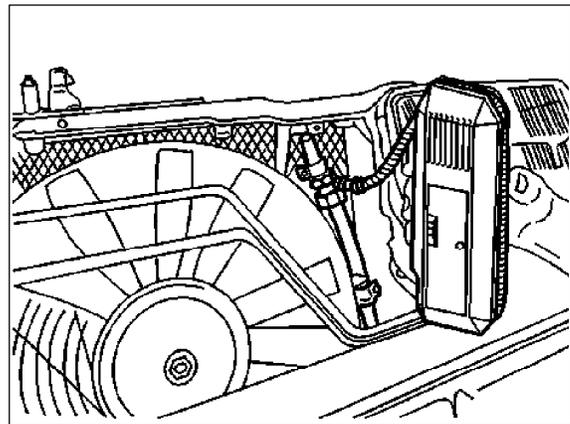


Figure 1

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Models 124, 129

If parts require replacement, only R134a-type components are to be installed.

Models 107, 116, 123, 126, 201

If the A/C lines, condenser or evaporator require replacement, please continue with

C. Removal of Mineral Oil from A/C System .

Note:

If replacing the A/C compressor, use a compressor designed for refrigerant R134a if available. If a R134a compressor is not available as a spare part, be certain to drain the mineral oil from the new R12 compressor prior to installation.

⚠ CAUTION!

In this case, do not refill A/C system with R12, please continue with D. Replacing Receiver/Drier .

C. Removal of Mineral Oil from A/C System

Note:

During the conversion to R134a refrigerant, it is important to remove as much mineral oil from the A/C system as possible.

Procedure

1. Press  button.
2. Set temperature selector wheels to max. heat detent (red zone).
3. Press  button.
4. Engage max. A/C fan speed (Tempmatic) or Press  if automatic A/C.
5. Close all doors and windows.
6. Run engine at 2000 rpm for approx. 10 minutes.
7. Stop engine.
8. Using air conditioning service equipment, evacuate R12 refrigerant at high- and low- pressure sides (A, Figure 2 and B, Figure 3) of A/C system for 45 minutes.

Note:

A/C service equipment should be able to pull at least 29.2" of vacuum.

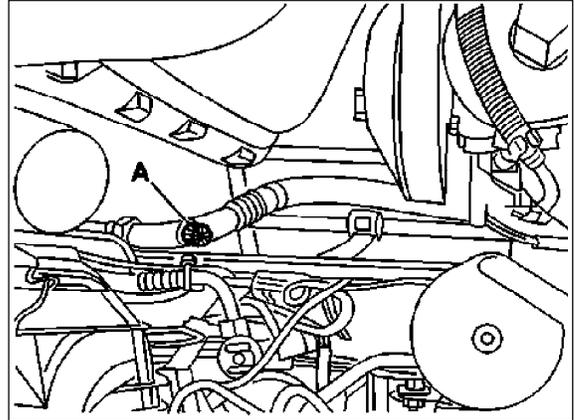


Figure 2

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A Location of service valve on high pressure side

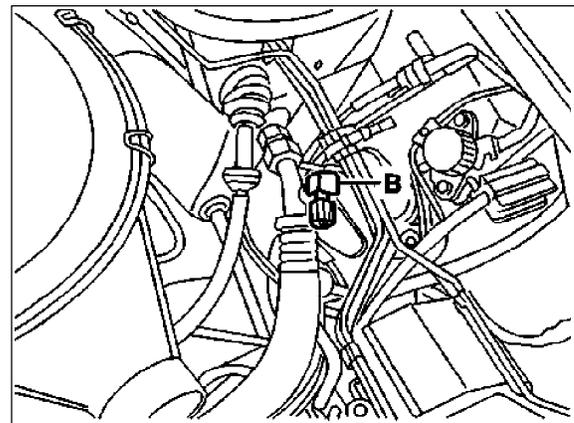


Figure 3

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B Location of service valve on low pressure side

9. Refill recycled R12 once again into A/C system.
10. Operate A/C system again, as in above steps 1-7 for approx. 10 minutes.

⚠ CAUTION!

Should the A/C compressor become noisy, stop engine and continue with D. Replacing Receiver/Drier .

11. Using air conditioning service equipment, evacuate the R12 at high- and low- pressure sides (A, Figure 2 and B, Figure 3) of A/C system for 45 minutes.

Note:

A/C service equipment should be able to pull at least 29.2" of vacuum.

⚠ CAUTION!

At this point, R12 is not to be used in A/C system again.

D. Replacing Receiver/Drier

Please see SMS (beige microfiches), Repair Instructions, Job No. 83-540.

E. Installation of Service Valves

⚠ CAUTION!

Prior to the installation of the angled service valve (Figure 6) or adapter hose (4, Figure 7) the existing Schrader valve core (arrow, Figure 4) located in A/C line must be removed.

1. Depending on accessibility, select the appropriate service valves (Figure 5 and Figure 6) or adapter hose (4, Figure 7) and install on the low- and high-pressure side of the A/C system (A, Figure 2 and C, Figure 4).

Tightening torque: 7.5 ± 0.5 Nm

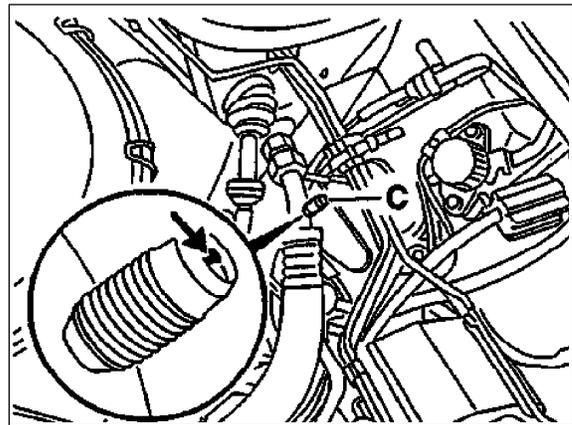


Figure 4

P83.30-0221-01A

⚠ CAUTION!

The threads of the service valves are treated with a chemical thread locker, which becomes effective after 15 minutes. When installing the hose, make certain that the hose and service valve do not come in contact with any moving parts. Removal of the service valve beyond this time span is not possible.

Standard service valve (without Schrader valve), the Schrader valve in the A/C line remains installed.
High-pressure side: Red protective cap.
Low-pressure side: Blue protective cap.

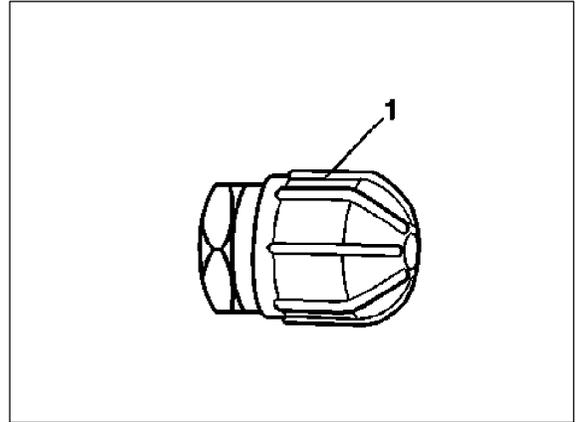


Figure 5

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Angled service valve (with Schrader valve), the Schrader valve in the A/C line is to be removed.
High pressure side: Red protective cap.
Low pressure side: Blue protective cap.

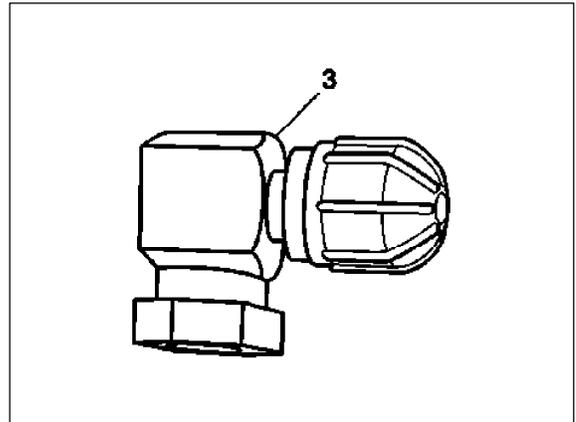


Figure 6

P83.30-0219-01

Note:

The adapter hose (4, Figure 7) is designed for use in areas with difficult access to the service valve. Additionally, depending on the application (high- or low-pressure side), the standard service valve with respective protective cap (Figure 5) must be installed on the open end of the adapter hose (circle, Figure 7).

⚠ CAUTION!

Be careful not to mix up low-pressure (blue) and high-pressure (red) service valve caps when installing the service valves into A/C lines.

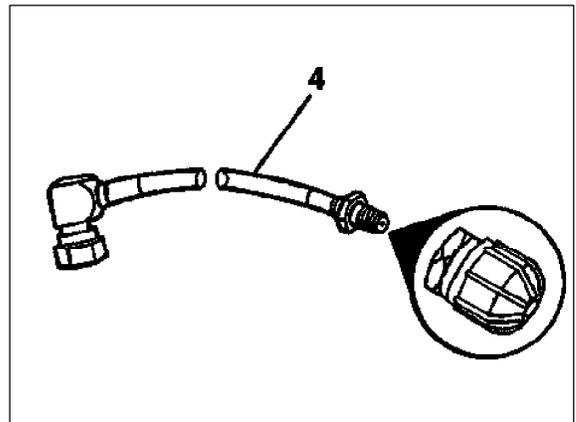


Figure 7

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F. Filling A/C System with R134a Refrigerant

1. Evacuate A/C system using air conditioning service equipment.
2. Fill A/C compressor with PAG oil, note fill capacity in table below.
3. Fill A/C system with refrigerant R134a, note fill capacity in table below.
4. Run engine at idle speed for approx. 5 minutes.

R134a Refrigerant and PAG Oil Fill Capacities

Model	Refrigerant fill capacity in g	PAG oil fill capacity in ml
107	1)	2)
116	1)	2)
123	1)	2)
124	900 g	140 ml
126	1100 g	140 ml
129	850 g	140 ml
201	850 g	140 ml

- 1) Original fill - less 10%.
- 2) Refer to specific model original equipment A/C compressor oil fill requirements.

G. Affixing the new R134a Retrofit Label

1. Using a permanent marking pen, note fill capacities of R134a refrigerant and PAG oil in the appropriate boxes of the new R134a retrofit label (part number S-2659-096), along with the conversion date and information on the individual performing retrofit (Figure 8). **Do not use the old label (part no. 440-817-10-20), because it does not comply with the US Federal EPA regulations.**
2. Affix the new R134a Retrofit Label over the existing label.

NOTICE: AIR CONDITIONER RETROFITTED TO R134a
Retrofit procedure performed to SAE J1881
CAUTION: SYSTEM TO BE SERVICED BY QUALIFIED PERSONNEL

Name and Address
of Technician and Company
Performing Retrofit
(Dealer Code)

Date

R134a (R134a)
(R134a)
Amount

LUBRICATION (PAG OIL)
Amount and Manufacturer

Mercedes-Benz of North America, Inc.

S-2659-096

Figure 8
Retrofit Label color: sky blue

S-2659-096

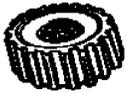
H. Performing Final Function Test of A/C System.

1. Perform final function and leak test of the A/C system to verify proper function of the entire A/C system.

Special Tool Information

A service kit, intended to clean and refurbish damaged threads on the A/C service valve, as a part of the conversion process. An item list of the A/C service tool kit along with information on contacting Kent-Moore directly are noted below.

J 39500-275 Kit Includes:

	J 25498-A High Side Adapter Fitting This adapter allows connection of a standard R-12 1/4" flare service hose to the 3/8" flare high side service port. (The retrofit procedure calls for R-12 recovery from the high side only with A/C compressor operating).
	J 34611-A Double Ended Valve Core Remover. One end is for servicing the larger valve core and is also required to adjust or service the valve core pin extension of the R-12 to R-134a retrofit adapter. The other end is a standard size valve core remover with sufficient length to reach through a retrofit adapter.
	J 38702 Deep Core Adapter Fitting This adapter is required for high side port connection on some 1991 and newer A/C systems (retrofit procedure calls for R-12 recovery from high side only, with A/C compressor operating.)
	J 39037 High Side Octagon Socket This socket is required to install high side R-12 to R-134a port converter.
	J 39500-89 Storage Case This storage case holds the complete A/C Retrofit Service Tool Kit.
	J 41256 Low Side Octagon Socket This socket is required to install low side R-12 to R-134a port converter.
	J 41265 Thread Cleaning Wire Brush The R-12 port threads need to be cleaned for effective adhesion of the Loctite material used to lock port converters in place.
	J 41266 Low Side Port Thread Restorer This tool is a 7/8" - 20" thread die to restore damaged threads of an R-12 low side port before installing a port converter.
	J 41267 High Side Port Thread Restorer This tool is a 3/4" - 28" thread die to restore damaged threads of an R-12 high side port before installing a port converter.

U83.81-0001-JH

Description	Part Number
A/C Retrofit Service Tool Kit	J 39500-275

● Kent-Moore

Phone: 1-800-345-2233

Fax: 313-578-7375

Additional A/C Service Equipment Information

Snap-on/Sun

Description	Part/Model No.	Dealer price (\$)
"Kool KARE" Recycling Center R12 1)	EEAC101A	3,374.25 2)
"Kool KARE" Recycling Center R134a 1)	EEAC104A	3,524.25 2)

1) Available via MBNA Standard Equipment Program.

2) Denotes current dealer price at this time.

Automotive Diagnostics (Bear)

Description	Part/Model No.	Dealer price (\$)
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Recovery/Recycling/Recharging System R12 1)	40-375	3,905.00 2)
Recovery/Recycling/Recharging System R134a 1)	40-380	4,245.00 2)

- 1) Available via MBNA Standard Equipment Program.
- 2) Denotes current dealer price at this time.

Parts Information

Part Name	Part Number
Standard service valve	Low-pressure side 000 835 07 51 1)
	High-pressure side 000 835 06 51 1)
Angled service valve	Low-pressure side 000 835 09 51 1)
	High-pressure side 000 835 08 51 1)
Adapter hose	000 830 17 96 2)
PAG compressor oil	001 989 08 03
R134a refrigerant 15 lb. container	Q 4 83 0191
R134a refrigerant 30 lb. container	Q 4 83 0190
R134a Retrofit Label	S-2659-096 3)
Receiver/drier	Per model application

- 1) as required.
- 2) order with hose: Standard service valve.
- 3) the label part number is a literature number and must be ordered separately via MB-Net. Do not combine with order for parts. We suggest ordering a sufficient number of retrofit labels in advance.

Time Allowance Information

Recommended labor times to convert A/C refrigerant system from R12 to R134a:

1. A/C system with R12 refrigerant Convert to R134a = 1.7 hrs. (changed).
2. A/C system with R12 refrigerant Convert to R134a = 1.2 hrs (with compressor replacement).

In Case of Warranty

During warranty repairs on vehicles with R12 refrigerant A/C systems, it may become necessary to have the A/C system converted to use R134a refrigerant.

1. Please use damage code and operation number of the damage causing part.
2. Operation No. 83-1762-00 and time allowance for A/C system refrigerant evacuate/charge .
3. Operation No. 83-0000-01, 0.2 hrs. (install service valves and affix retrofit label).

Note:

Operation numbers and time allowances are subject to change. Refer to the latest MBNA Warranty Time Guide for updates.