

83—522 Removal and installation of refrigerant compressor

A. Engine 110 (with York refrigerant compressor)

Oil capacity

Oil type cold-flowing oil (approved cold-flowing oils refer to Specifications for Service Products page no. 361)

Oil level at	min.	normal	max.
Oil quantity in cc	180	240	300

Refrigerant compressor	Dipstick depth (mm)	22	25	28
------------------------	---------------------	----	----	----

Tightening torques

	Nm	(kpm)
Suction or pressure hose on refrigerant compressor	40—45	(4.0—4.5)
Screw (7) carrier to cylinder head	30—5	(3.0—0.5)
Inch screw (4) fastening plate to compressor	30	(3.0)
Screw (9) fastening plate to carrier	45	(4.5)
Screw (31) holder tensioning roller to cylinder head	30—5	(3.0—0.5)
Necked-down screw (28) belt-tensioning roller	45	(4.5)
Inch screw (51) coupling to refrigerant compressor	25	(2.5)
Oil check screw	6—8	(0.6—0.8)

Special tool

Pulling-off screw for pulley



100 589 00 35 00

Conventional tools

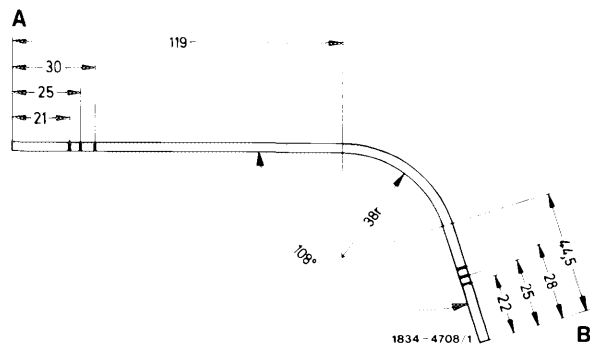
Double open end wrench 1/2" x 9/16", 5/8" x 3/4", 7/8" x 15/16", 1" x 1 1/8"
Socket 1/2"

Self-made tool

Oil dipstick for refrigerant compressor

3 notches each in specified spacings
flat length: 210 mm
material: brass wire dia. 3 mm

A = horizontal installation
B = vertical installation



Note

All threaded bores and screws on refrigerant compressor are in inches.

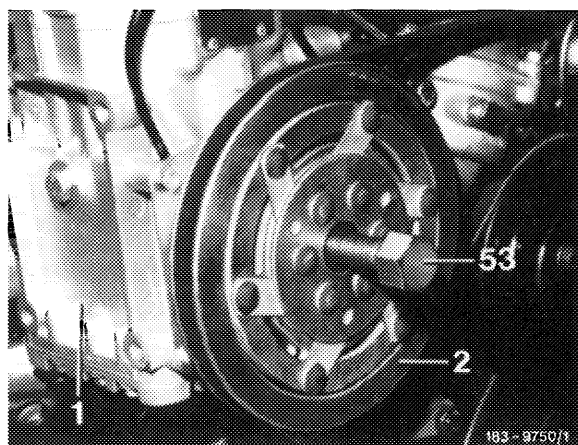
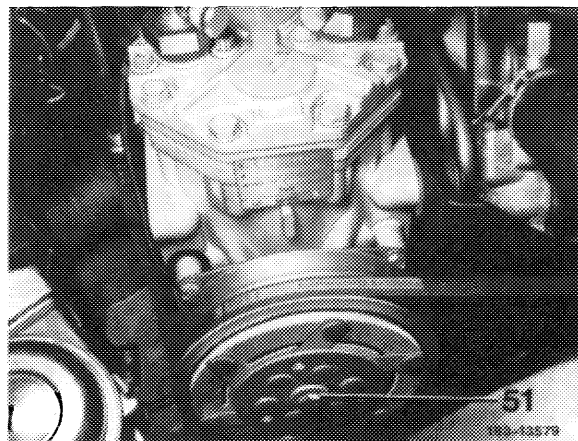
Remove refrigerant compressor together with fastening plate (3).

Check oil charge of refrigerant compressor each time prior to adding fresh refrigerant (83-520).

If the refrigerator must be renewed or reconditioned, insert a strainer into suction connection. For details refer to 83-524.

Removal

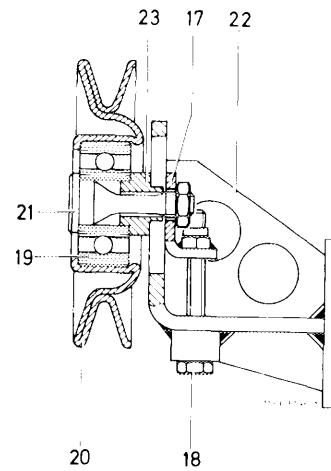
- 1 Cover righthand front fender.
- 2 Switch-on ignition, air-conditioning system and blower (electromagnetic clutch will pull).
- 3 Unscrew screw (51).
- 4 Remove pulley of electromagnetic clutch (2) from crankshaft of refrigerant compressor (1) with puller screw (53).
- 5 Switch-off ignition.
- 6 Disconnect battery.
- 7 Drain air-conditioning system (83-516).



8 Loosen necked-down screw (28) for tensioning roller (27).

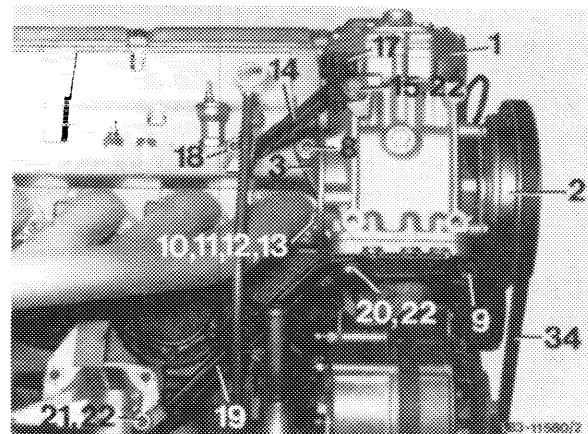
9 Slacken V-belt (34) with adjusting screw (25) and remove V-belt.

10 Disconnect electric line on cable connector (17).

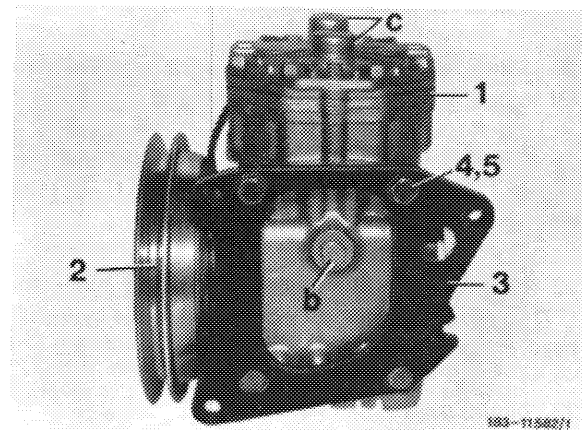


11 Unscrew struts (14 and 19) on compressor, cylinder head and engine carrier.

12 Loosen 3 screws (8 and 9) as well as nut (12) and remove refrigerant compressor with fastening plate (3).

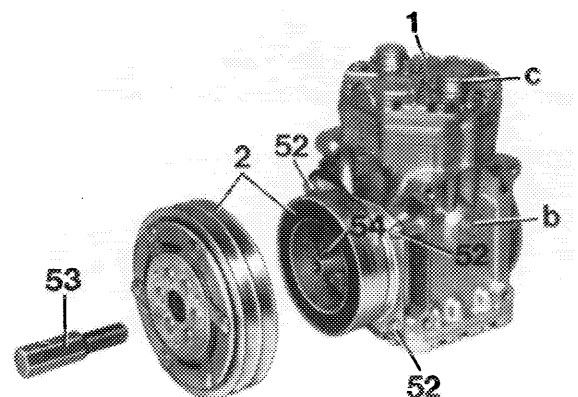


13 Loosen screws (4) and remove fastening plate (3) from refrigerant compressor.



14 Remove pulley of electromagnetic clutch (2), pay attention to spring plate (54).

15 Unscrew 4 screws (52) and remove coil of electromagnetic clutch (2) from refrigerant compressor.

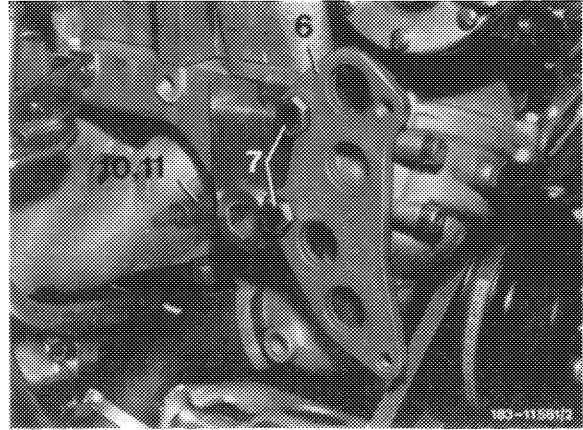


Installation

16 Check carrier (6) for cracks and screws (7) for tight seat.

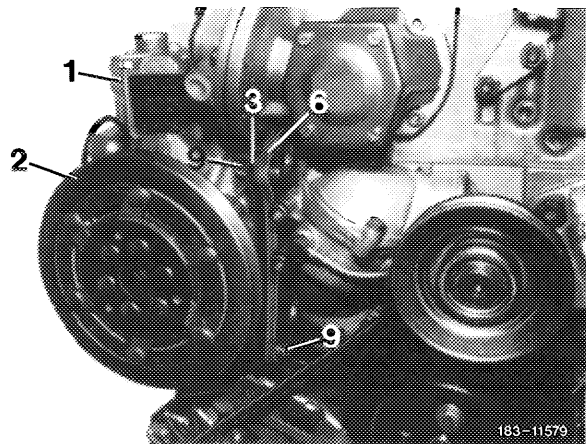
Attention!

New refrigerant compressors are filled with nitrogen. Remove closing caps (C) on connections only, when the gas has been evacuated via **oil check screw (b)**. For this purpose, unscrew oil check screw for a few threads until gas is heard to escape.



17 Screw fastening plate (3) to refrigerant compressor with inch screws (4) and washers (5).

18 Screw electromagnetic clutch to refrigerant compressor.



19 Slip spacing ring (11) on stud (10).

20 Screw refrigerant compressor with fastening plate (3) to carrier (6) by means of screws (9).

21 Screw fastening plate (3) with screw (8) and washer (22) to cylinder head, as well as with nut (12) and washer (13) on stud (10).

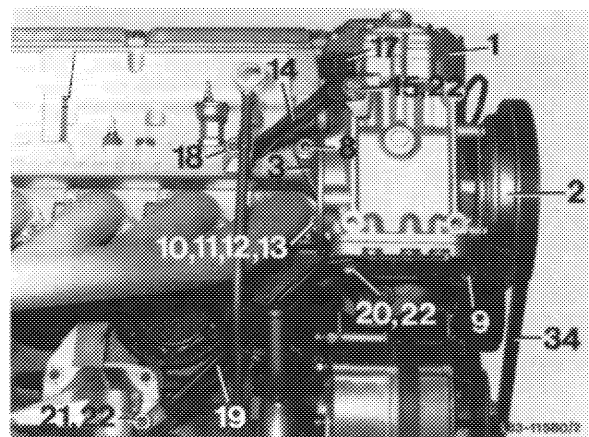
22 Mount strut (14) with holder for cable connector (17) to refrigerant compressor as well as the cylinder head.

23 Mount strut (19)

24 Mount V-belt, tension with adjusting screw (25) and tighten necked-down screw (28)

25 Connect electric line of electromagnetic clutch and supplementary harness to cable connector.

26 Check oil level in refrigerant compressor (83–520).



27 Connect hose or pipe line to refrigerant compressor while checking sealing rings and moistening threads with cold-flowing oil.

Note: Connections on refrigerant compressor are marked with "S" (suction – suction end) or "D" (Disch.-pressure end). Wrongly installed hose lines will result in failure of refrigerant compressor (fluid shock).

28 Evacuate air-conditioning system and fill up again (83–514).

29 Switch-on ignition, air-conditioning system and blower and tighten screw (51).

30 Check air-conditioning system for function (83–510).

B. Engines 115, 615, 616, 617 (with York refrigerant compressor)

Oil capacity

Oil type cold-flowing oil (approved cold-flowing oils refer to Specifications for Service Products page no. 361)

Oil level at	min.	normal	max.	
Oil quantity in cc	180	240	300	
Refrigerant compressor	Dipstick depth (mm)	22	25	28

Tightening torques

	Nm	(kpm)
Suction or pressure hose on refrigerant compressor	40–45	(4.0–4.5)
Inch screw (7, 12) carrier to refrigerant compressor	30	(3)
Screw M 12 x 1.5 (13) carrier to cylinder head	45–5	(4.5–0.5)
Screw M 10 x 40 (14) carrier to cylinder head	30–5	(3.0–0.5)
Screw M 8 x 55 (17) carrier to water pump	30	(3)
Nut M 10 (22) carrier to intake pipe (gasoline engines)	50	(5)
Screw M 10 x 25 (18) carrier to intake pipe (diesel engines)	50	(5)
Necked-down screw (21) belt-tensioning roller	45	(4.5)
Inch screw (51) coupling to refrigerant compressor	25	(2.5)
Oil check screw	6–9	(0.6–0.8)

Special tool

Pulling screw for pulley



100 589 00 35 00

Conventional tools

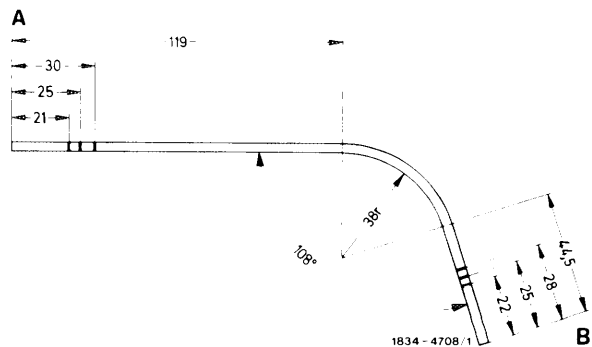
Double open end wrench 1/2" x 9/16", 5/8" x 3/4", 7/8" x 15/16", 1" x 1 1/8"
Socket 1/2"

Self-made tool

Oil dipstick for refrigerant compressor

3 notches each in specified spacings
flat length: 210 mm
material: brass wire dia. 3 mm

A = horizontal installation
B = vertical installation



Note

The refrigerant compressor can be removed only together with refrigerant compressor carrier.

All threaded bores and screws on refrigerant compressor are in inches.

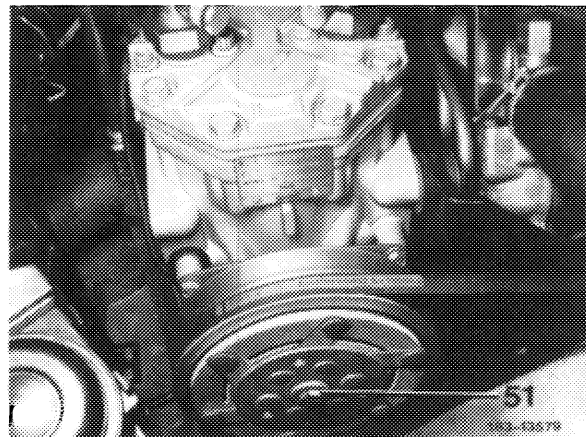
Check oil charge of refrigerant compressor each time prior to adding fresh refrigerant (83–520).

Attention!

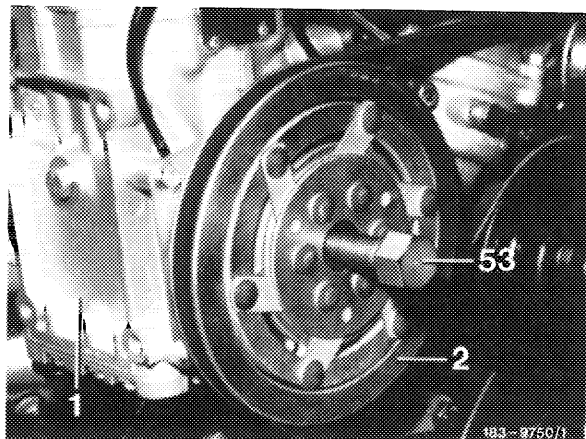
If refrigerant compressor must be renewed or reconditioned, insert a strainer into suction connection. For details refer to 83–524.

Removal

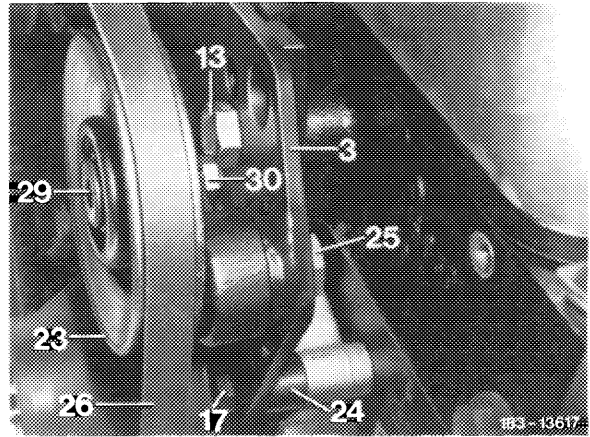
- 1 Cover righthand front fender.
- 2 Remove air filter. On diesel vehicles, loosen vacuum line on vacuum pump.
- 3 Switch-on ignition, air-conditioning system and blower (electromagnetic clutch will pull).
- 4 Unscrew screw (51).



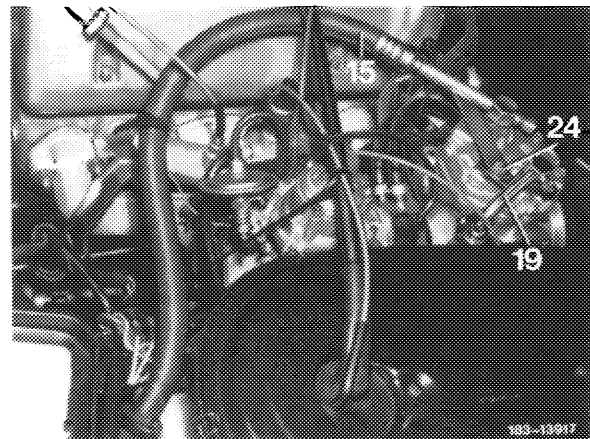
- 5 Remove pulley of electromagnetic clutch (2) from crankshaft of refrigerant compressor (1) by means of pulling screw (53).
- 6 Switch-off ignition.
- 7 Disconnect ground line of battery.
- 8 Drain air-conditioning system (83–516).



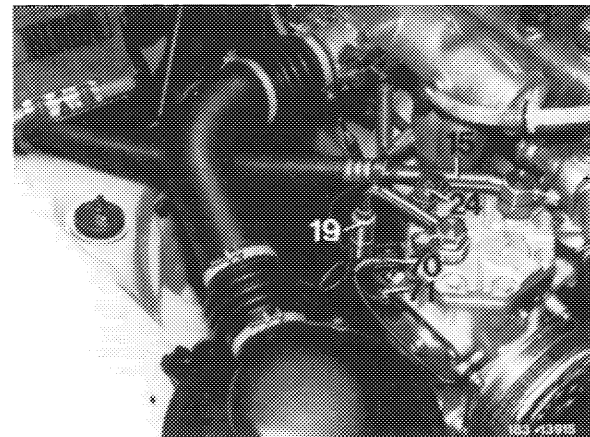
9 Loosen screw (25), swivel belt-tensioning roller (23) in downward direction and remove V-belt (26).



10 Unscrew screw (24) and unscrew refrigerant lines (15 and 19) from refrigerant compressor. Close connections with blind plug.

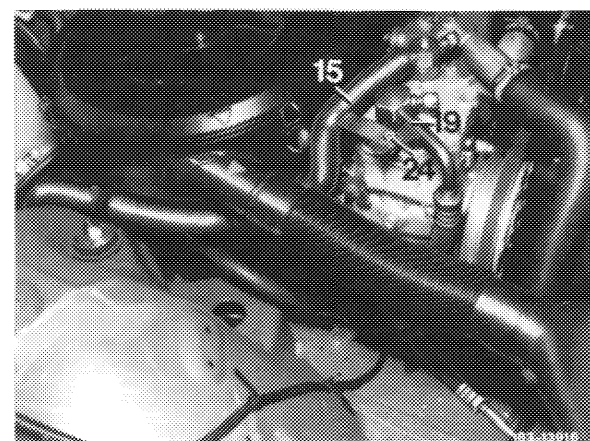


Model 123.020/023



Model 123.120/123/126

11 Disconnect electric lines from cable connector (70). Unscrew screw (71) and remove holder with cable connector.



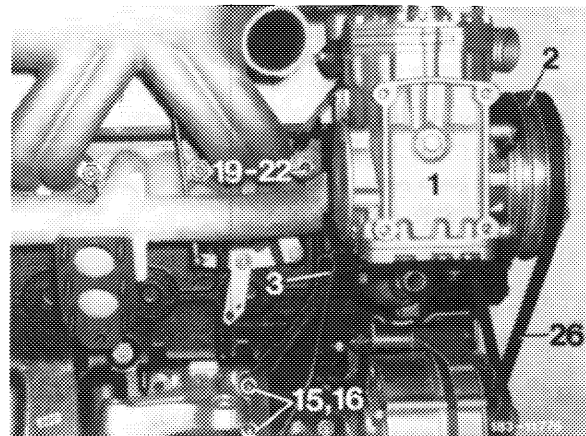
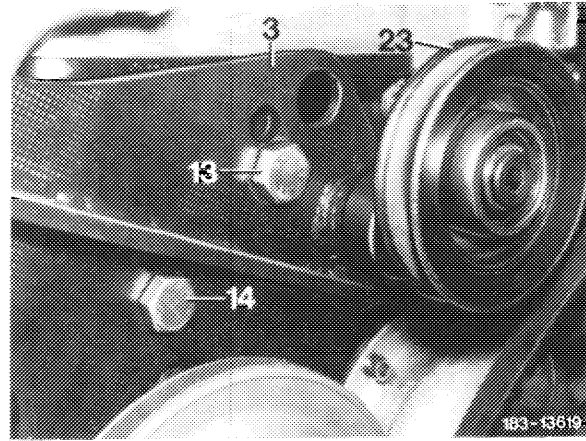
Model 123.130

12 Remove radiator (not applicable on model 123.130).

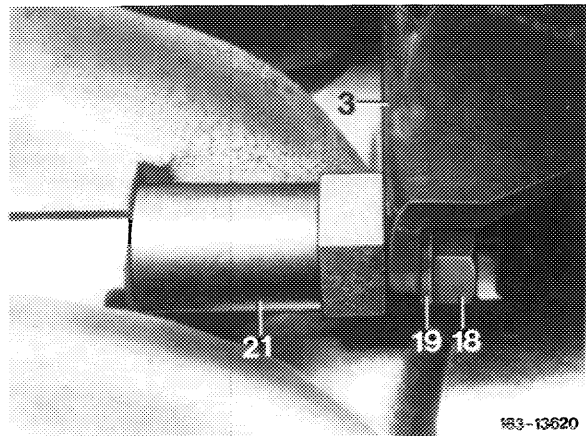
13 Remove fan or viscofan coupling.

14 Remove V-belt for alternator and take pulley from water pump.

15 Unscrew screw (13, 14 and 17).

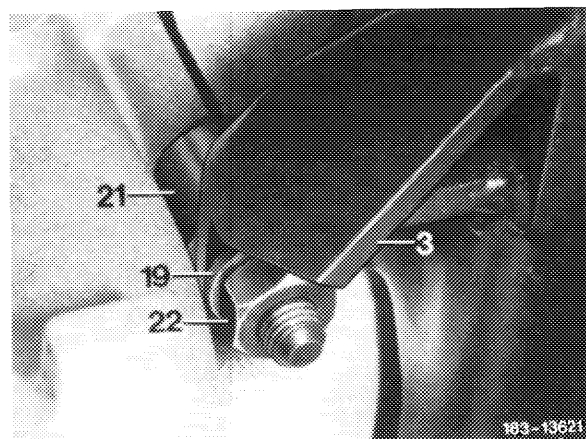


16 Unscrew 2 nuts (16) as well as nut (22) or screw (18).



Engine 115
Carrier on exhaust manifold

17 Remove refrigerant compressor with carrier while paying attention to spacing sleeve (24).

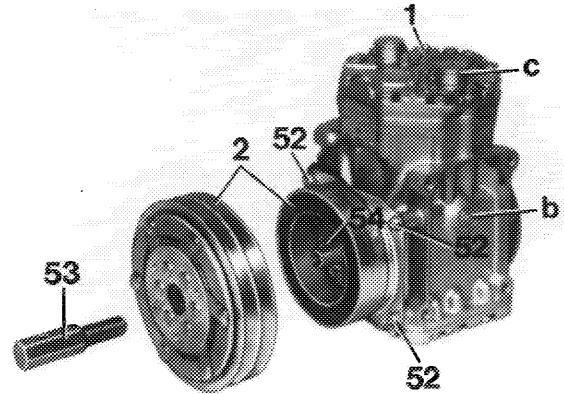


Engine 615, 616, 617
Carrier on exhaust manifold

18 Remove pulley of electromagnetic clutch (2), pay attention to spring washer (54).

19 Unscrew 4 screws (52) and remove coil of electromagnetic clutch (2).

20 Unscrew 4 inch screws (7) and 2 inch screws (12) and remove refrigerant compressor from carrier (3).



183-13535/1

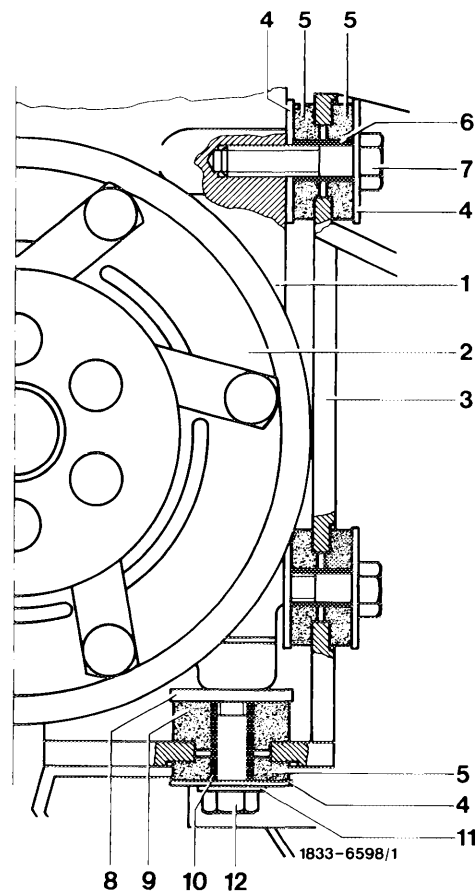
Installation

Attention!

New refrigerant compressors are filled with nitrogen. Remove closing caps (C) on connections only, when the gas has been evacuated via **oil check screw (b)**. For this purpose, unscrew oil check screw for a few threads until gas is heard to escape.

21 Mount electromagnetic clutch on refrigerant compressor.

22 Screw refrigerant compressor (with parts item 4 to 12) to carrier (3).



- 1 Refrigerant compressor
- 2 Electromagnetic clutch
- 3 Carrier
- 4 Washer (1.5 mm thick)
- 5 Rubber disc (8.5 mm thick)
- 6 Sleeve (17 mm long)
- 7 Inch screw 3/8" - 16 (35 mm long)
- 8 Washer (2.5 mm thick)
- 9 Rubber disc (13.5 mm thick)
- 10 Sleeve (22 mm long)
- 11 Washer
- 12 Inch screw 3/8" - 16 (50.8 mm long).

D. Engines 615, 616, 617.912, 617.952 (with Delco refrigerant compressor)

Oil capacity

Oil type cold-flowing oil (for approved cold-flowing oils refer to Specifications for service products, page No. 362)

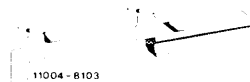
Oil filling capacity new in refrigerant compressor 170 cc

Tightening torques

	Nm	(kpm)
Screws M 12 refrigerant compressor to support	60 + 10	(6 + 1)
Screw pipeline to refrigerant compressor	50 ± 3	(5 ± 0.3)
Hose line from evaporator to pipeline 7/8"	29–37	(2.9–3.7)
Hose line from pipeline to condenser 7/8"	29–37	(2.9–3.7)

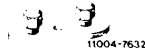
Special tools

Holding device for refrigerant compressor



116 589 14 31 00

Pressing-off plate for refrigerant compressor



109 589 00 25 00

Conventional tools

Double open-end wrench 1/2" x 9/16", 5/8" x 3/4", 7/8" x 15/16", 1" x 1 1/8"
Socket 14 mm, 3/8" square

Assembly testing device with 3 filling hoses or evacuation and filling device for air-conditioning system

e.g. made by Christof Fischer,
Augsburger Str. 289, 7000 Stuttgart

Attention!

If the refrigerating compressor must be renewed, e.g. owing to blocking, always renew pipe line with hoses on refrigerant compressor, since small parts (abrasives) of refrigerant compressor may enter pipe line and may then not be completely removed up to 100 % when flushing with R 11.

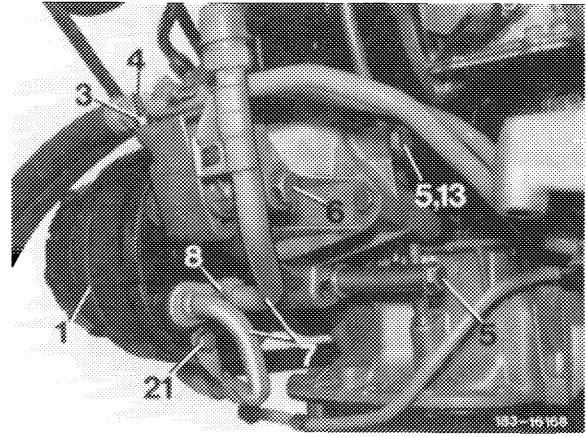
Removal

- 1 Cover front fender
- 2 Pull plug from clutch and drain air conditioning system.

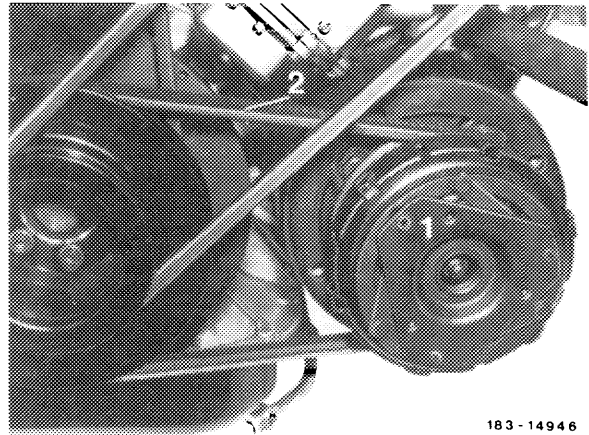
3 Loosen nut (3) on clamping screw (4).

4 Loosen screws (5 and 6), swivel refrigerant compressor (1) inwards and take-off V-belt (2).

- | | |
|--------------------------|--------------------|
| 1 Refrigerant compressor | 6 Screw M 12 x 140 |
| 3 Nut | 7 Pipeline |
| 4 Clamping screw | 8 Screw M 10 x 30 |
| 5 Screw M 12 x 170 | |

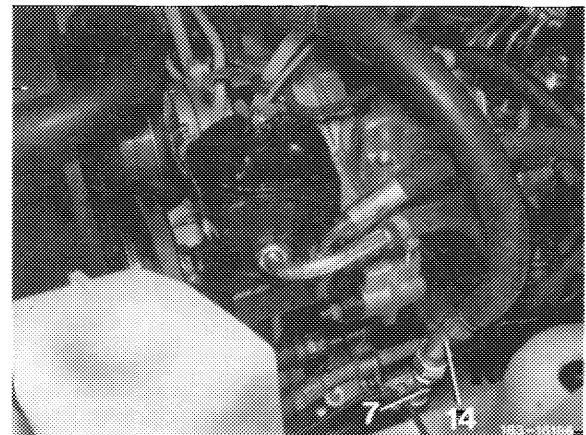


- | |
|--------------------------|
| 1 Refrigerant compressor |
| 2 V-belt |

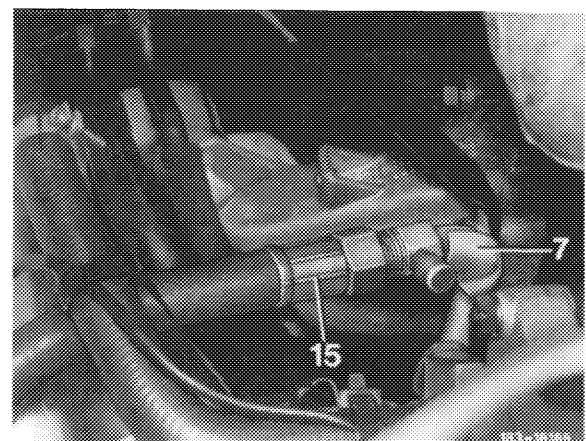


5 Screw-off hose lines (14 and 15) from pipeline (7) and close connections with plugs.

- | |
|--|
| 7 Pipeline |
| 14 Hose line from evaporator to pipeline |



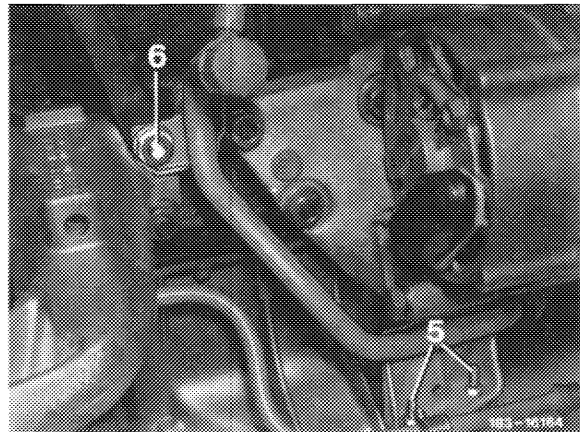
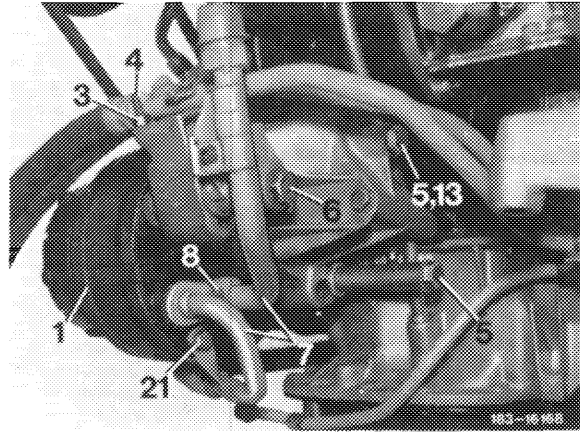
- | |
|---|
| 7 Pipeline |
| 15 Hose line from pipeline to condenser |



6 Completely screw-out screws and nuts (5 and 6) and remove refrigerant compressor (1) with pipeline (7).

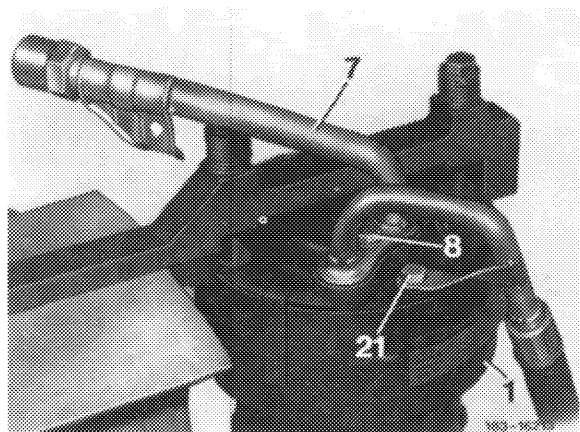
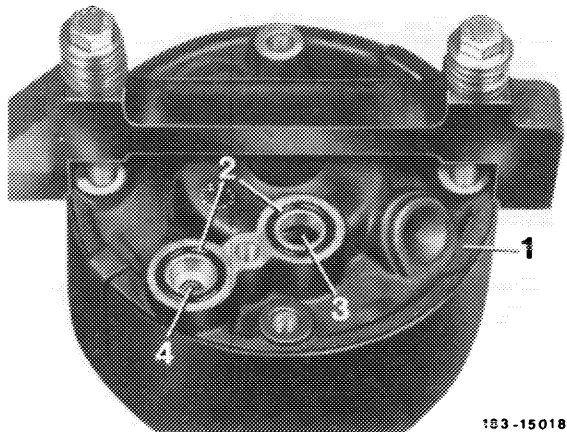
7 If the refrigerant compressor is replaced, refer to section "Check oil level in refrigerant compressor" (83-520).

8 When working on the electromagnetic clutch or the shaft sealing, screw off pipeline (7) and close connections on refrigerant compressor with pressing-on plate.



Installation

9 Check O-rings on refrigerant compressor and screw-on pipeline (7).

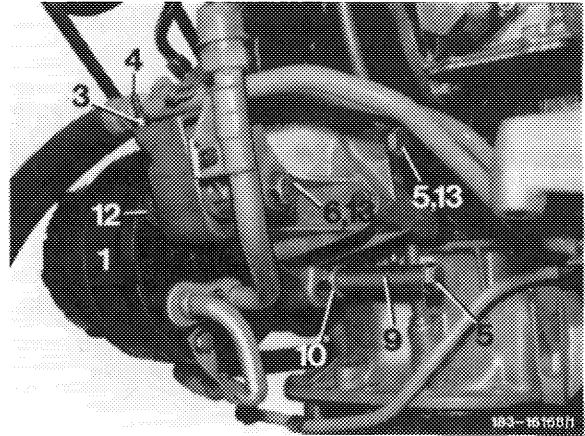


10 Provisionally screw refrigerant compressor to carrier by means of screws and nuts (5 and 6), tensioning screw (4), spacer sleeve (9), and spacing washers (10, 11 and 12).

11 Screw nut (3) on tensioning screw (4).

12 Put V-belt (2) in place and tension by means of nut (3).

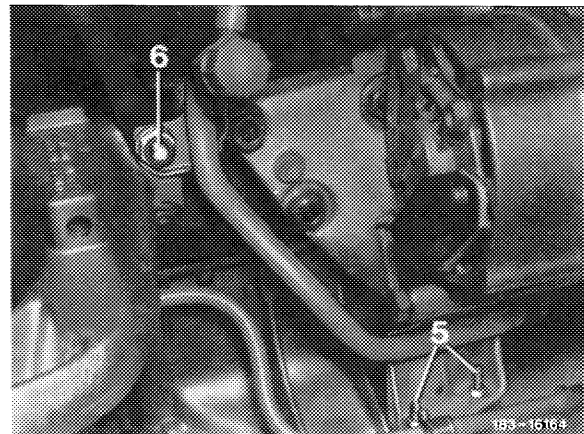
1 Refrigerant compressor	9 Spacer sleeve
3 Nut	10 Spacing washer 5 mm
4 Tensioning screw	12 Spacing washer 9 mm
5 Screw	13 Spring washer
6 Screw	



13 Tighten screws and nuts (5 and 6).

14 Remove closing caps on pipeline and hose line. Provide O-rings with cold-flowing oil and screw hose lines to pipeline and tighten.

15 Evacuate air-conditioning system and replenish (83-514).



Note:

If oil is filled into refrigerant compressor, the compressor is treated like a new refrigerant compressor, that is, when operating engine for the first time, run for at least 4 minutes at *idle* only (S 83/26 dated 25.07.1979).

16 Check air-conditioning system for function and leaks (83-510 and 512).