A. Engine 110

Oil	ca	กล	cit	ŀv
\sim 11	w	wa	•	

Oil level Oil quantity in cc		min 180	normal 240	max 300	
Refrigerant	Dipstick depth mm	22	25	28	
Tightening torques			Nm	(kpm)	
Suction or pressure hose on re	frigerant compressor		40-45	(4.0-4.5	
Screw (7) carrier to cylinder h	ead		30–5	(3.00.5	
Inch screw (4) fastening plate	to compressor		30	(3.0)	
Screw (9) fastening plate to ca	rrier		45	(4.5)	
Screw (31) holder tensioning i	oller to cylinder head		305	(3.00.5	
Necked-down screw (28) belt-	tensioning roller		45	(4.5)	
Inch screw (51) coupling to re	frigerant compressor		25	(2.5)	
Oil check screw			6–8	(0.6–0.8	
Special tool					
Pulling-off screw for pulley	1004-8084	1004-306		100 589 00 35 00	
Conventional tools					

Oil dipstick for refrigerant compressor

horizontal installation _ 3n - → 3 notches each in specified spacings flat length: 210 mm material: brass wire 3 mm dia vertical installation

Note

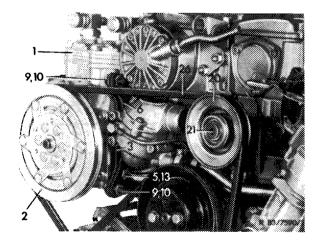
All threaded bores and screws on refrigerant compressor are in inches.

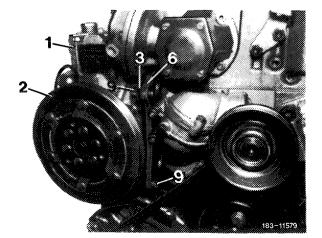
Remove refrigerant compressor together with fastening plate (3).

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

Layout refrigerant compressor 1st version

- Refrigerant compressor
- Electromagnetic clutch
- Fastening plate
- Inch screw
- Carrier Screw
- Spacing ring
- Snap ring Tensioning roller
- Necked-down screw V-belt



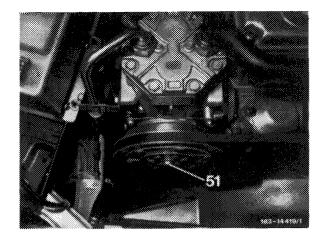


Layout refrigerant compressor 2nd version

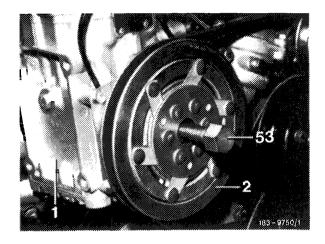
- Refrigerant compressor
- Electromagnetic clutch
- Fastening plate
- Carrier
- Screw

Removal

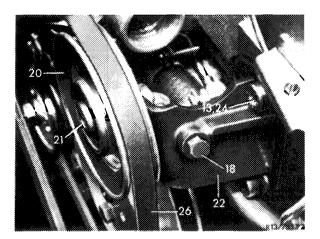
- 1 Cover right-hand front fender.
- 2 Switch-on ignition, air conditioning system and blower (electromagnetic clutch will pull).
- 3 Unscrew screw (51).



- 4 Remove pulley of electromagnetic clutch (2) from crankshaft of refrigerant compressor (1) with puller screw (53).
- 5 Switch-off ignition.
- 6 Remove battery.



- 7 Drain air conditioning system and unscrew service valve with hose lines from refrigerant compressor. Then close all connections with plugs (83-516).
- 8 Loosen necked-down screw (21) for tensioning roller (20). Slacken V-belt (26) with adjusting screw (18) and remove V-belt.

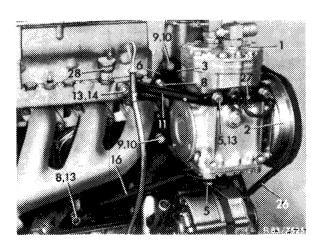


9 Disconnect electric line on cable connector (27).

Layout refrigerant compressor 1st version

- Refrigerant compressor
- Electromagnetic clutch Fastening plate on compressor
- Inch screw
 Carrier on cylinder head
- Nut
- Screw
- Spacing ring
- Strut

- 13 Snap ring 16 Strut 26 V-belt 27 Cable connector 28 Temperature switch (100 °C)



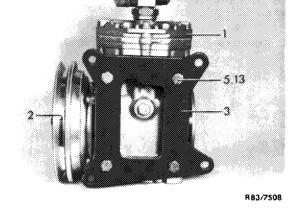
Layout refrigerant compressor 2nd version

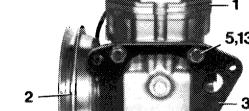
- Refrigerant compressor Electromagnetic clutch Fastening plate

- Inch screw
- Nut
- 1 2 3 5 8 9
- Screw Spacing sleeve
- Strut
- 13 Washer
- 14 16 Screw
- Strut
- 26 V-belt
- Cable connector
- Temperature switch (100 °C)
- 10 Unscrew struts (11 and 16) on compressor, cylinder head and engine carrier.
- 11 Unscrew screws (9) and remove refrigerant compressor with fastening plate.
- 12 Loosen screws (5) and remove fastening plate (3) from refrigerant compressor.

Fastening plate on refrigerant compressor 1st version

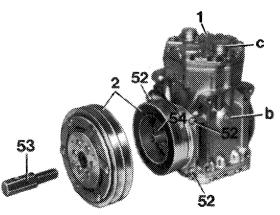
- 1 Refrigerant compressor
- Electromagnetic clutch
- 3 Fastening plate
- 5 Inch screw 13 Snap ring





183-11582

- Fastening plate on refrigerant compressor 2nd version
- 1 Refrigerant compressor
- 5 Inch screw
- Electromagnetic clutch
- 13 Washer
- 3 Fastening plate
- 13 Remove pulley of electromagnetic clutch (2), pay attention to spring washer (54).
- 14 Unscrew 4 screws (52) and remove coil of electromagnetic clutch (2) from refrigerant compressor.



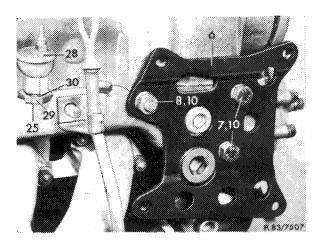
183 - 13535/1

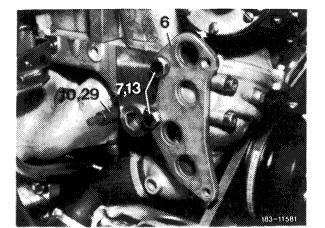
Installation

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

Carrier on cylinder head 1st version

- 6 Carrier
- Screw
- Nut
- 10 Spacing ring
- Sealing ring
 Temperature switch (100 °C)
- Connection
- Sealing ring



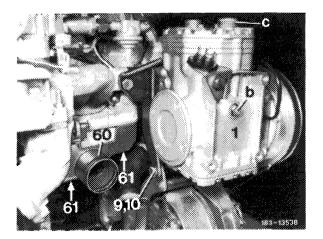


Carrier on cylinder head 2nd version

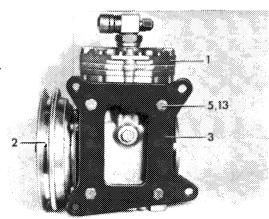
- Carrier
- Screw
- Spacing sleeve Washer 10
- 13 Wash 29 Stud

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.



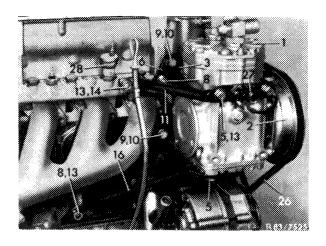
- 16 Screw fastening plate (3) to refrigerant compressor with inch screws (5) and snap rings or washers (13).
- 17 Mount electromagnetic clutch (2) to refrigerant compressor.
- 18 Screw refrigerant compressor (1) with fastening plate (3) to carrier (6) with parts (item 9).



R83/7508

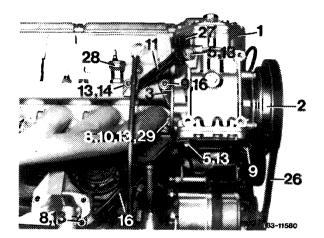
Layout refrigerant compressor 1st version

- Refrigerant compressor
- Electromagnetic clutch
- 2 3 5 6 Fastening plate on compressor
- Inch screw
- Carrier on cylinder head
- 8 Nut
- Screw
- Spacing ring Strut 10
- 11
- 13 16 Snap ring Strut
- V-belt
- 26 27 Cable connector
- Temperature switch (100 °C)

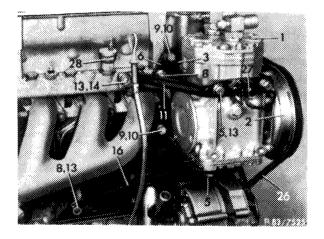


Layout refrigerant compressor 2nd version

- Refrigerant compressor
- Electromagnetic clutch 2 3 5 8 9
- Fastening plate on compressor
- Inch screw
- Nut
- Screw
- Spacing sleeve
- 11 13 Strut
- Snap ring Screw
- 14
- 16 Strut V-belt
- Cable connector
- Temperature switch (100 °C)



- 19 Mount struts (11 and 16) with cable connector (27) to refrigerant compressor as well as to cylinder head.
- 20 Mount V-belt (26), tension with adjusting screw (18) (thumb test at 60 N (6 kp)) approx. 10 mm.
- 21 Install battery.
- 22 Connect electric line of electromagnetic clutch and supplementary harness to cable.



- 23 Check oil level in refrigerant compressor (83-520).
- 24 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).

- 25 Evacuate air conditioning system and fill up again (83–512 and 514).
- 26 Switch-on ignition, air conditioning system and blower and tighten screw (51).
- 27 Check air conditioning system for function /(83–510).

B. Engines 116, 117

Oil capacity

Oil type Cold-flowing oil (approved cold-flowing oils refer to specifipage no. 362)	fications for service product	es,
Oil level with new refrigerant compressor	in cc	300
Oil level with refrigerant compressor removed and air conditioning system flushed with R 11	in cc	300
Oil level with refrigerant compressor removed and air conditioning system not flushed	in cc	200
Tightening torques	Nm	(kpm)
Suction hose on pipe line with Cu seal	60 ± 5	(6.0 ± 0.5)
without Cu seal	70 ± 5	(7.0 ± 0.5)
Pressure hose on pipe line with Cu seal	45 ± 5	(4.5 ± 0.5)
without Cu seal	55 ± 5	(5.5 ± 0.5)
Pipe line to refrigerant compressor	17	(1.7)
Oil check plug	15–17	(1.5-1.7)
8 mm screw	35	(3.5)
10 mm screws	30–35	(3.0-3.5)
12 mm screws	4045	(4.0-4.5)

11004-7632

109 589 00 25 00

Conventional tool

Double open-end wrench 3/8" x 7/16" for oil check screw

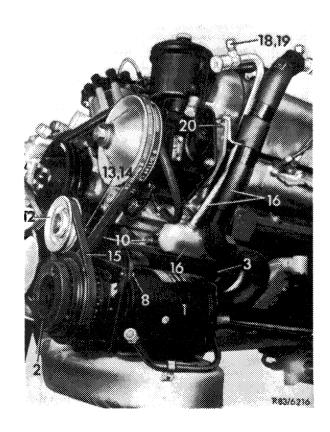
Note

The refrigerant compressor can be removed and installed together with refrigerant compressor carrier only. If the compressor is removed because of leaks on compressor or on system, correct oil level in compressor by filling-up again, but fill-in only max 200 cc cold-flowing oil.

If the refrigerant compressor is renewed, drain all the cold-flowing oil from new refrigerant compressor. Then add max 200 cc cold-flowing oil. If the system is flushed with refrigerant R 11, fill 300 cc cold-flowing oil into refrigerant compressor. When loosening or tightening hose or pipe connections, be sure to apply counterhold with a second open-end wrench.

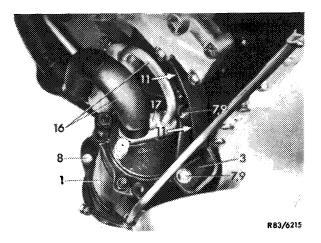
Removal

- 1 Cover front fender.
- 2 Drain air conditioning system (83-516).
- 3 Remove radiator (20-420).
- 4 Unscrew belt tensioning roller (12) on refrigerant compressor carrier (3) and remove V-belt (15).
- 5 Unscrew pressure and suction hose from pipe line (16).
- 6 Unscrew screw (20) on carrier for pressure oil pump.

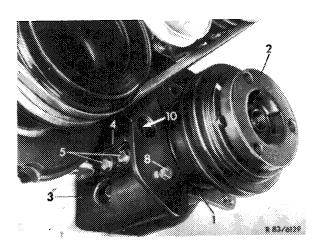


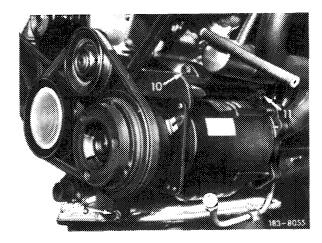
Layout refrigerant compressor (1st version)

- 7 Unscrew screw (17) and remove pipe line (16) from refrigerant compressor paying attention to sealing rings.
- 8 Screw pressure-testing plate to refrigerant compressor by means of available fastening members (17).



- 9 Unscrew screws (5) from supporting angle (4) or on oil pan upper half.
- 10 Unscrew two screws (11) on refrigerant compressor carrier (3) rear, as well as two screws (10) on engine face.
- 11 Pull electric plug connection from compressor.
- 12 Remove V-belt for power steering pump (13-340).
- 13 Remove refrigerant compressor in forward direction.
- 14 Unscrew refrigerant compressor from refrigerant compressor carrier (3) by unscrewing 4 screws (7 and 8).

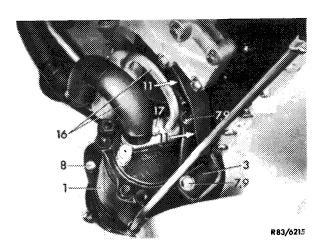




15 If the pipe line (16) requires removal, turn pipe line by 180° and remove in downward direction.

Layout refrigerant compressor (1st and 2nd version)

- 1 Refrigerant compressor
- 3 Carrier
- 7 Inch screw with washer
- 8 Inch screw with washer
- 9 Spacing ring
- 11 Inch screw
- 16 Pipe line
- 17 Inch screw with snap

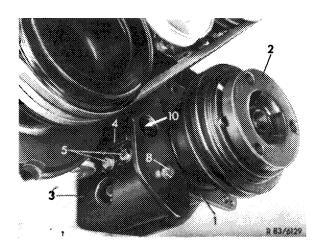


Layout refrigerant compressor with new pipe line (USA starting model year 1975)

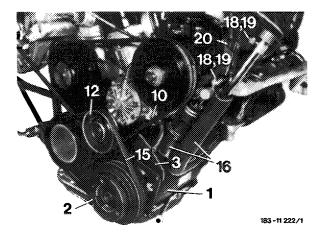
- 1 Refrigerant compressor
- Electromagnetic clutch
- 3 Carrier
- 10 Hex socket screw12 Belt tensioning roller
- 15 V-belt
- 16 Pipe line
- 19 Closing cap 20 Screw with washer, snap ring and hex nut

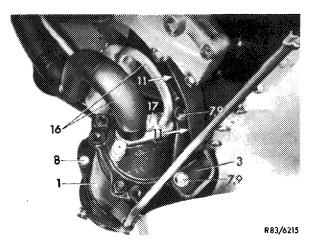
Installation

- 16 Correct oil level in refrigerant compressor (83-520).
- 17 Screw refrigerant compressor (1) to refrigerant compressor carrier (3) (with parts item 7 to 9) (item 7 and 8 are inch screws).
- 18 Install pipe line (16).
- 19 Install refrigerant compressor with refrigerant compressor carrier. Screw to cylinder crankcase and to supporting angle (4) or to oil pan upper half (with parts items 5, 10 and 11).



- 20 Remove pressure-testing plate, provide O-rings on refrigerant compressor with cold-flowing oil and renew, if required. Then screw pipe line (16) to refrigerant compressor with screw (17).
- 21 Mount V-belt for power steering pump and tenstion (13-340).

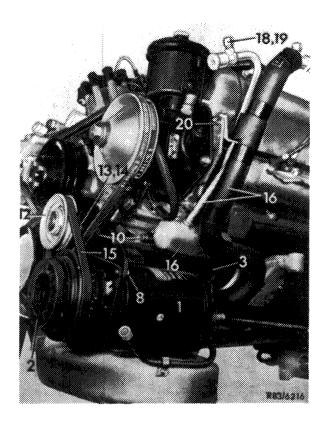




- 22 Screw pipe line (16) (with parts item 20) to carrier for pressure oil pump.
- 23 Screw tensioning roller (12) to refrigerant compressor carrier (3). Mount V-belt (15) and tension (13–340).

Note: Check alignment of pulley — compressor in relation to pulley of crankshaft and tensioning roller, correct with compensating washers (14) between tensioning roller and refrigerant compressor carrier, if required.

24 Plug electric double plug to refrigerant compressor.



- 25 Install radiator (20-420).
- 26 Connect pressure and suction hose to pipe line (16).
- 27 Evacuate air conditioning system and fill up again (83–512 and 514).

- 28 Run engine and check cooling system for leaks.
- 29 Check air conditioning system for function (83–510).

C. Engine 100.985

Oil filling capacity

Oil grade Cold-flowing oil (for approved cold-flowing oils refer to specifical products page 362).	ations for service	
Oil quantity with new refrigerant compressor	in cc	300
Oil quantity with refrigerant compressor removed	in oo	300
and air conditioning system flushed with R 11	in cc	300
Oil quantity with refrigerant compressor removed	in cc	200
and air conditioning system not flushed		
Tightening torques	Nm	(kpm)
Pipe line (3) to pipe line (24) wit Cu seal	60 ± 5	(6.0 ± 0.5)
without Cu seal	70 ± 5	(7.0 ± 0.5)
Pressure hose (18) to damper reservoir (6) with Cu seal	45 ± 5	(4.5 ± 0.5)
without Cu seal	70 ± 5	(5.5 ± 0.5
Pipe line (3) to refrigerant compressor (1)	17	(1.7)
Oil check plug	35	(3.5)
8 mm screws	30-35	(3.0-3.5)
10 mm screws	4045	(4.0-4.5)
12 mm screws	40-45	(4.0-4.5)
Special tool	_	
Pressure test plate	109 589 00 25 00	
Conventional tool		
Double open-end wrench 3/8" x 7/16" for oil check plug		

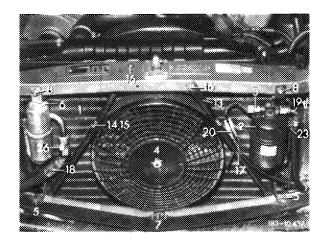
Note

The refrigerant compressor can be removed and installed only together with refrigerant compressor carrier. If the compressor is removed because of leaks on compressor or on system, correct oil level in compressor when filling up again, but do not add more than max 200 cc fresh cold-flowing oil.

If the refrigerant compressor is renewed, drain all the cold-flowing oil from new refrigerant compressor. Then add max 200 cc cold-flowing oil. If the system is flushed with refrigerant R 11, fill 300 cc cold-flowing oil to refrigerant compressor.

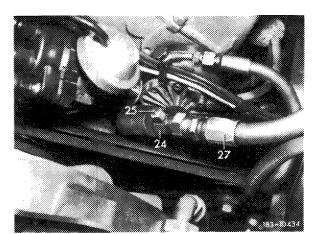
When loosening or tightening hose or pipe connections, make sure to apply counterhold with a second openend wrench.

The pipe line (4) can also be removed with the refrigerant compressor installed. For this purpose, unscrew right-hand engine mount and lift engine slightly.



Service valve (pressure end)

- 6 Damper reservoir
- 18 Pipe line with hose line from compressor to damper reservoir
- 26 Service valve (pressure end)



Service valve (suction end)

- 24 Pipe line
- 25 Service valve (suction end)
- 27 Hose line from evaporator to compressor

Removal

- 1 Cover front fender.
- 2 Drain air conditioning system (83-516).
- 3 Remove battery and pull positive line with clip from holder.
- 4 Remove battery frame.

5 Unscrew shielding plate from right-hand engine mount.

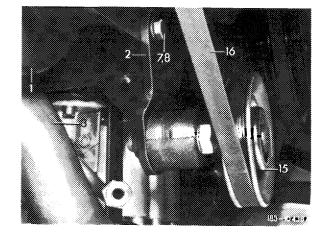
- 6 Loosen belt tensioning roller (15) and remove Vbelt (16) from refrigerant compressor and tensioning roller.
- 7 Unscrew protective cover for oil hoses.

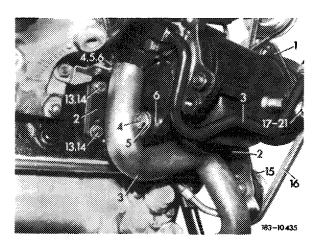
 - Refrigerant compressor
 Refrigerant compressor carrier

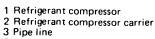
 - 1 Retrigerant compressor
 2 Refrigerant compressor
 3 Pipe line
 7 Screw
 8 Washer
 15 Belt tensioning roller
 - V-belt
- 8 Unscrew pipe line (3) at rear on refrigerant compressor from holder (17) of oil pan, as well as from pipe line (24).
- 9 Unscrew screw (9)
 - 1 Refrigerant compressor
- 2 Refrigerant compressor carrier
- 3 Pipe line 4 Screw
- 5 Washer
- 6 Spacing ring

- 13 Screw 14 Washer

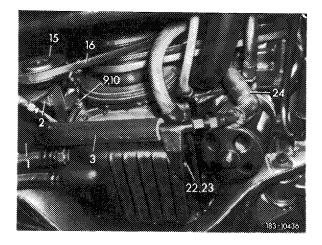
- 15 Belt tensioning roller16 V-belt17 Holder
- 18 Screw
- 19 Washer
- 20 Screw
- 21 Washer







- 9 Screw
- 10 Washer
- 15 Belt tensioning roller 16 V-belt
- 22 Screw 23 Washer
- 24 Pipe line



- 10 Unscrew screws (11 to 13) for refrigerant compressor carrier (2) on crankcase.
- 11 Close openings on refrigerant compressor rear with pressure test plate.
- 12 Remove refrigerant compressor with refrigerant compressor carrier in forward and downward direction.

21 Washer

10 Washer

15 Belt tensioning roller

11 Screw

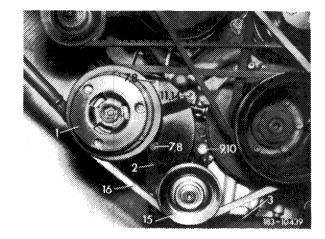
16 V-belt

1 Refrigerant compressor 15 Belt tensioning roller 16 V-belt 17 Holder 2 Refrigerant compressor carrier 3 Pipe line 4 Screw 18 Screw 5 Washer 19 Washer 20 Screw

14 Washer

6 Spacing ring 12 Screw

13 Unscrew screws (4 and 7) and remove refrigerant compressor from refrigerant compressor carrier, while paying attention to spacing rings (6).

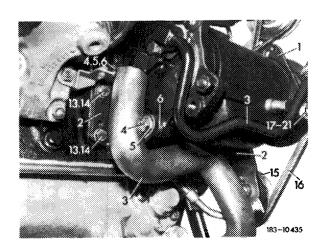


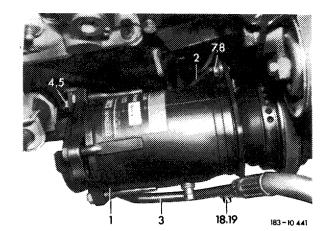
- Refrigerant compressor
- Refrigerant compressor carrier
- Pipe line
- Screw 8 Washer
- - Screw

Installation

- 14 Insert pipe line (3).
- 15 Check oil level in refrigerant compressor (83-520).
- 16 Check sealing rings on refrigerant compressor.
- 17 Close refrigerant compressor with pressure test plate.
- 18 Attach refrigerant compressor (with parts items 4 to 8) to refrigerant compressor carrier (2).
- 1 Refrigerant compressor
- 2 Refrigerant compressor carrier 3 Pipe line
- 4 Screw 5 Washer
- 6 Spacing ring
- 13 Screw 14 Washer

- 15 Belt tensioning roller
- 16 V-belt 17 Holder
- 18 Screw 19 Washer
- 20 Screw
- 21 Washer

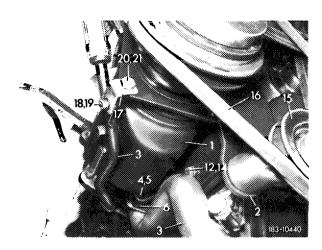


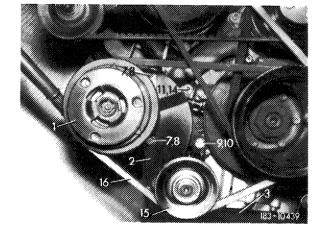


- Refrigerant compressor
- Refrigerant compressor carrier
- 2 3 4 5 Pipe line Screw
- Washer

- Screw
 - Washer 18 Screw
 - Washer
- 19 Attach refrigerant compressor with refrigerant compressor carrier (with parts items 11 to 14) to crankcase, but do not yet tighten.
 - Refrigerant compressor
 - Refrigerant compressor carrier
- 2 3 4 Pipe line
- Screw Washer
- 5 6 12 Spacing ring
- 12 Screw 14 Washer

- 15 Belt tensioning roller
- 16 V-belt Holder
- 18 Screw
- Washer
- Screw
- Washer

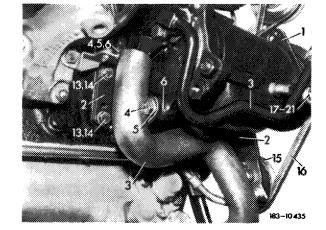


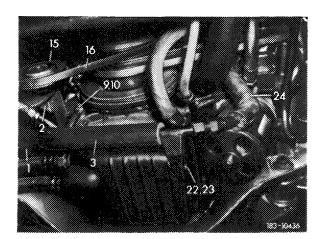


- Refrigerant compressor
- Refrigerant compressor carrier Pipe line
- Screw
- Washer

- Screw
- Washer 10
- 11 Screw
- Belt tensioning roller
- V-belt
- 20 Attach pipe line (3) to refrigerant compressor, crankcase front, to oil pan, as well as pipe line (24), but do not yet tighten.
- 1 Refrigerant compressor 2 Refrigerant compressor carrier3 Pipe line
- Screw 5 Washer 6 Spacing ring
- 13 Screw 14 Washer

- Belt tensioning roller
- V-belt 16 17 Holder
- 18 Screw 19 Washer
- Screw
- 20 21 Washer





- 1 Refrigerant compressor
- 2 Refrigerant compressor carrier 3 Pipe line 9 Screw

- 9 Screw
 10 Washer
 15 Belt tensioning roller
 16 V-belt
 22 Screw
 23 Washer
 24 Pipe line

- 21 Tighten screws (9, 11, 12 and 13).
- 22 Tighten pipe line (3).
- 23 Mount V-belt (16) and tension by means of belt tensioning roller (15) in downward direction.
- 24 Check installation of oil line for automatic transmission in range of refrigerant compressor.
- 25 Mount protective cover for oil hoses.
- 26 Screw shielding plate to right-hand engine mount.
- 27 Install battery frame and battery.
- 28 Evacuate air conditioning system (83-512).
- 29 Refill air conditioning system (83-514).
- 30 Check air conditioning system for function (83-510).

D. Engine 617.950

Oil capacity

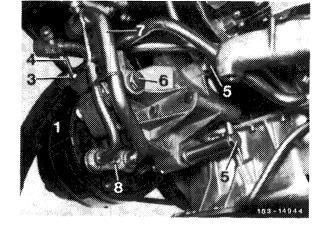
Oil capacity, new, in refrigerant compressor		170 cc		
——————————————————————————————————————				
Tightening torques		Nm	(kpm)	
Screws M 12, refrigerant compressor to carrier		60+10	(6+1)	
Screw, pipe line to refrigerant compressor	<u></u>	50±3	(5±0.3)	
Hose line from evaporator to pipe line 7/8"		29–37	(2.9–3.7	
Hose line from pipe line to condenser 3/4"		24-28	(2.42.8	
Special tools				
Holding device for refrigerant compressor	11004-8103	116 589	116 589 14 31 00	
Pressure test plate for refrigerant compressor	11004-7832	109 589	109 589 00 25 00	
Conventional tools				
Double open-end wrench 1/2" x 9/16", 5/8" x 3/4", 7 Socket 14 mm, 3/8" square	//8" x 15/16", 1" x 11/	8"		
Assembly tester with 3 filling hoses or evacuating and filling device for air conditioning system		e.g. made by Christof Fischer, Augsburger Str. 289 D-7000 Stuttgart 60		

Removal

¹ Cover front fender.

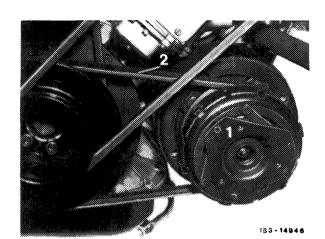
 $^{2\,}$ Pull plug from clutch and drain air conditioning system (83–516).

- 3 Loosen nut (3) on tensioning screw (4).
- 4 Loosen screws (5 and 6), swivel refrigerant compressor (1) inwards and remove V-belt (2).

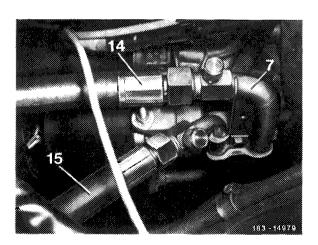


- 1 Refrigerant compressor 3 Nut

- 4 Tensioning screw 5 Screw M 12 x 170
- 6 Screw M 12 x 140 7 Pipe line 8 Screw M 10 x 30



- 1 Refrigerant compressor
- 2 V-belt
- 5 Unscrew hose lines (14 and 15) from pipe line (7) and close connections with plugs.

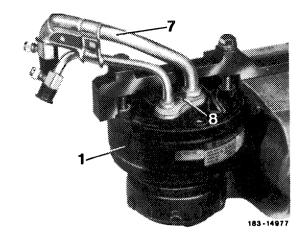


- 7 Pipe line
- 14 Hose line from evaporator to pipe line
- 15 Hose line from pipe line to condenser
- 6 Completely unscrew screws (5 and 6) and remove refrigerant compressor (1) together with pipe line (7).
- 7 If the refrigerant compressor is renewed, refer to section Checking oil level in refrigerant compressor (83-520).

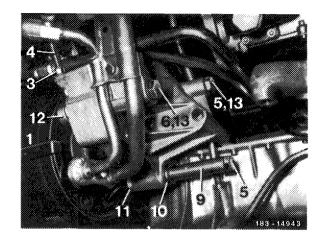
8 When working on electromagnetic clutch or shaft seal, unscrew pipe line (7) and close connections on refrigerant compressor with pressure test plate.

Installation

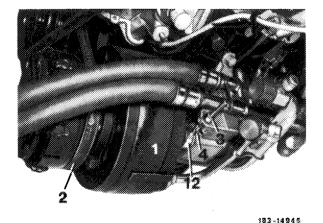
9 Check O-rings on refrigerant compressor and screwon pipe line (7).



10 Screw refrigerant compressor provisionally to carrier with screws (5 and 6), tensioning screw (4), spacing sleeve (9) and spacing washers (10, 11 and 12).



- 1 Refrigerant compressor
- 3 Nut 4 Tensioning screw
- 5 Screw M 12 x 170
- 6 Screw M 12 x 140
- 9 Spacing sleeve
- 10 Spacing washers 5 mm 11 Spacing washer 13 mm
- 12 Spacing washer 9 mm 13 Spring plate
- 11 Screw nut (3) to tensioning screw (4).
- 12 Mount V-belt (2) and tension with nut (3).



- 1 Refrigerant compressor2 V-belt3 Nut

- 4 Tensioning screw 12 Spacing washer 9 mm
- 13 Tighten screws (5 and 6).
- 14 Remove closing caps on pipe line and hose line. Provide threads and O-rings with cold-flowing oil, screw hose lines to pipe and tighten.
- 15 Evacuate system and fill up again (83-512, 514).
- 16 Check air conditioning system for operation and leaks (83-510, 512).

