

## 83–520 Checking oil level in refrigerant compressor

### A. York refrigerant compressor engine 110

#### Oil capacity

Oil type Cold-flowing oil (for approved cold-flowing oils refer to specifications for service products, page no. 362)

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

Refrigerant compressor	Dipstick depth mm	22	25	28
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**Tightening torque** Nm (kpm)

Oil check plug 6–8 (0.6–0.8)

#### Conventional tools

Double open-end wrench 1/2" x 9'16"

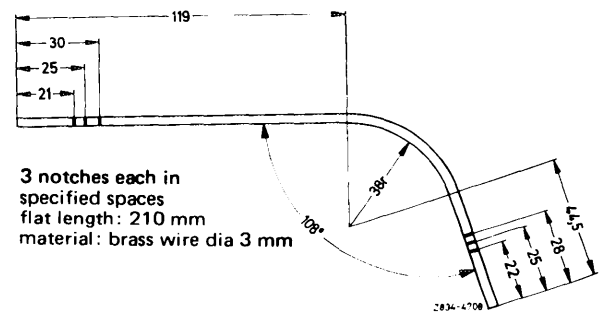
e.g. made by Christof Fischer  
Augsburger Straße 289  
7000 Stuttgart 60

Assembly tester with 3 filling hoses or evacuating and filling device (service unit) for air conditioning system

#### Self-made tool

Oil dipstick for refrigerant compressor

horizontal installation



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

vertical installation

#### Note

Check oil charge of refrigerant compressor prior to each refill of refrigerant or when refrigerant or oil has been lost.

Since a certain quantity of oil is picked up by the refrigerant and will get into the system, a loss of refrigerant may also include a loss of oil.

Oil level in compressor should never be below a minimum level of 180 cc or a maximum of 300 cc.

Too much oil is detrimental for operation of system and will also result in reduced efficiency of air conditioning system.

When the refrigerant compressor is replaced, the oil volume of new compressor should not exceed the normal oil level.

All compressors **were filled** with approx. **300 cc of cold-flowing oil** by the manufacturer. Under normal conditions, oil is either changed or added. **Never fill-in machine or engine oil.**

The oil dipstick for measuring the oil level in refrigerant compressor must be self-made.

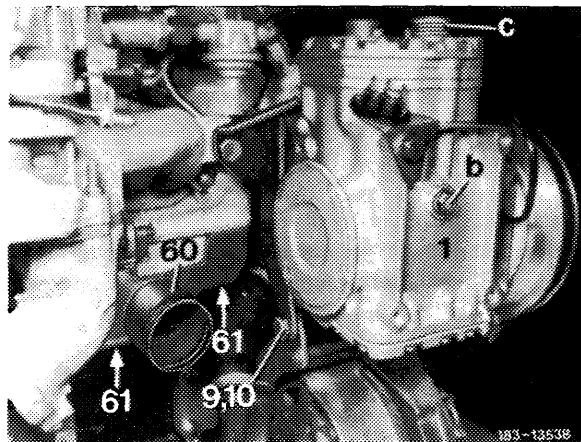
**Attention!**

**If only a small quantity of refrigerant (up to approx. 200 g per year) need be added, no oil level checkup is required.**

**Checking the oil level**

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- 1 Drain air conditioning system (83–516).
- 2 Slowly turn out oil screw (b) and slowly evacuate any pressure still prevailing in crankcase.



3 Turn crankshaft of refrigerant compressor so that the splining on crankshaft stub is in upward direction. If the position of the splining cannot be recognized (refrigerant compressor with built-in electromagnetic clutch), rotate crankshaft by feel until the oil dipstick can be pushed through to lowest part of crankcases.

4 Clean oil dipstick and measure oil level.

5 Renew O-ring on oil check screw and moisten with cold-flowing oil.

6 Mount oil check screw.

7 If a subsequent leak test indicates a leak at check screw, the leak cannot be repaired by tightening screw still further. Cause of leak may be either dirt under O-ring, a damaged O-ring or damaged seats on screw or compressor housing.

## B. Frigidaire refrigerant compressor engines 100.985, 116 and 117

### Oil capacity

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Oil type Cold-flowing oil (for approved cold-flowing oils refer to specifications for service products, page no. 362)

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Tightening torque	Nm	(kpm)
Oil check plug	15–17	(1.5–1.7)

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### Conventional tool

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

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### Note

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All compressors **were filled with approx. 300 cc cold-flowing oil** by manufacturer. Under normal conditions, oil must neither be changed nor added. **Never fill-in machine or engine oil.**

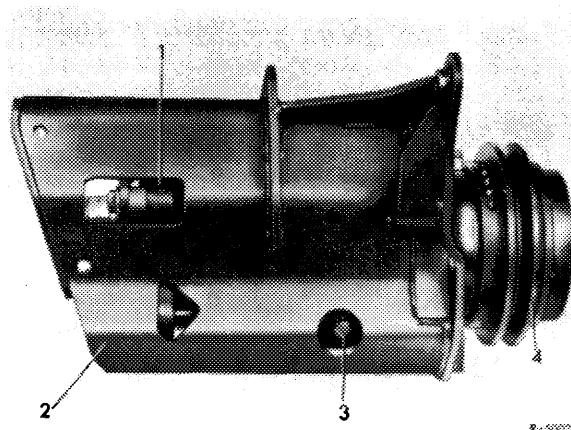
**Check oil level after replacing parts, prior to refilling the system, after losing refrigerant or oil.** Since a certain quantity of oil is picked up by the refrigerant and will get into the system, a loss of refrigerant may also include a loss of oil.

On models with Frigidaire compressor the oil level can be inspected only in removed condition and is required only when the system is completely empty. Details concerning removal and installation of refrigerant compressor (83-522).

For oil level checkup, unscrew oil check plug (3) drain oil completely from refrigerant compressor. Then add max 200 cc fresh cold-flowing oil, screw back oil check plug and tighten. If the system has been flushed with refrigerant R 11, fill-in 300 cc cold-flowing oil. Then check refrigerant compressor for leaks (83-525).

Frigidaire refrigerant compressor with carrier

- 1 Refrigerant compressor
- 2 Carrier
- 3 Oil level check plug
- 4 Electromagnetic clutch



## C. Delco refrigerant compressor (engine 617.950)

### Oil capacity

Oil type: cold-flowing oil (for approved types of cold-flowing oil refer to specifications for service products, page no. 362).

Oil capacity, new, in refrigerant compressor	170 cc
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### Oil capacity when working on system

Jobs	Quantity of cold-flowing oil to be filled in
Renew refrigerant compressor (system <b>not</b> flushed with R 11), oil quantity drained from old compressor above 40 cc. <sup>1)</sup> )	Drain cold-flowing oil from removed compressor and measure quantity. Also drain cold-flowing oil in new compressor and store in closed condition. Fill same quantity as in removed compressor into new compressor (fresh cold-flowing oil).
Renew refrigerant compressor (system <b>not</b> flushed with R 11), oil quantity drained from old compressor below 40 cc. <sup>1)</sup> )	see above, but fill-in 90 cc cold-flowing oil.
Renew refrigerant compressor (system flushed with R 11 first). <sup>1)</sup> )	Do not fill-in cold-flowing oil.
Recondition refrigerant compressor (drained oil quantity above 40 cc). <sup>1)</sup> )	Fill drained quantity of oil and additionally 30 cc into compressor.
Recondition refrigerant compressor (drained oil quantity below 40 cc). <sup>1)</sup> )	90 cc
Add refrigerant to system (up to 200 g).	Do not fill-in cold-flowing oil.
Add refrigerant to system (more than 200 g) or, in the event of leaks, fill up completely with fresh oil.	30 cc
Renew condenser	50 cc
Renew evaporator	70 cc
Renew receiver dehydrator	40 cc

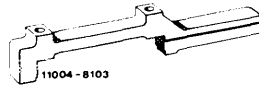
<sup>1)</sup> Renew receiver dehydrator, but do not add any cold-flowing oil into receiver dehydrator.

Tightening torques	Nm	(kpm)
Screws M 12, refrigerant compressor to carrier	60 + 10	(6 + 1)
Screw, pipe line to refrigerant compressor	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	(2.4–2.8)

## Special tools

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Holding device for refrigerant compressor



116 589 14 31 00

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Pressure test plate for refrigerant compressor



109 589 00 25 00

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## Conventional tools

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Double open-end wrench 1/2" x 9/16", 5/8" x 3/4", 7/8" x 15/16", 1" x 11/8"  
Socket 14 mm, 3/8" square

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Assembly tester with 3 filling hoses or evacuating and filling device for air conditioning system

e.g. made by Christof Fischer, Augsburg Str. 289  
D-7000 Stuttgart 60

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Oil pump order no. 823–2250

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## Note

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If the system has been flushed with R 11, it is not necessary to drain cold-flowing oil from new refrigerant compressor (no compressor oil need be filled in). Be sure to install a new receiver dehydrator.

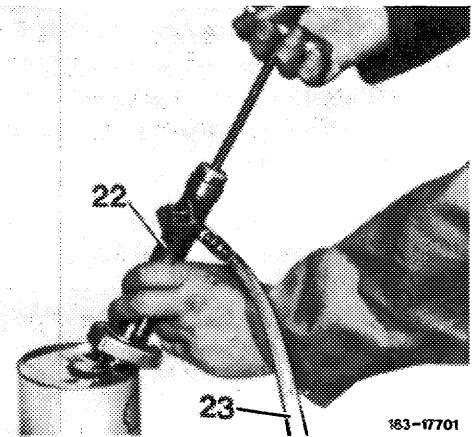
In the event of refrigerant losses up to 200 g during a long period no cold-flowing oil need be added. If more than 200 g refrigerant are added, check system for leaks. The specified quantity of cold-flowing oil can be forced into filled air conditioning system by means of an oil pump. If fresh oil must be filled in, add approx. 30 cc cold-flowing oil into system prior to evacuation.

Approx. 170 cc (6 oz) cold-flowing oil are added into 4-cylinder refrigerant compressor. Since this refrigerant compressor has no oil sump, a given oil quantity will circulate with the R 12 in air conditioning system under normal operating conditions. If a component of the system must be replaced, a given quantity of oil must be filled directly into new component.

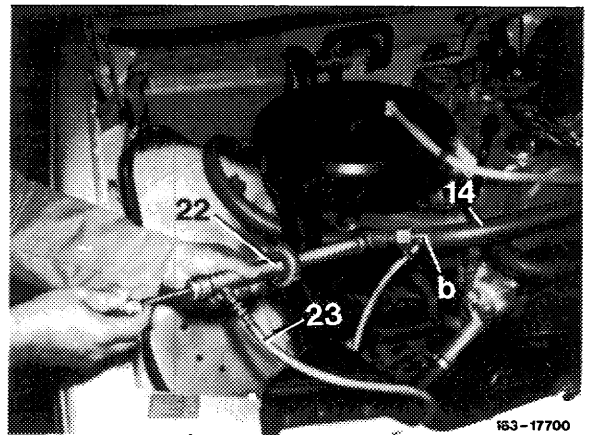
### **Adding cold-flowing oil with oil pump, with refrigerant compressor installed and air conditioning system filled**

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**Note:** Connect oil pump (22) to refrigerant circuit first, then determine accurate volume of oil pump by sucking-in and forcing-out cold-flowing oil several times.



- 1 Put cold-flowing oil into a measuring cup and draw-in with oil pump (22).
- 2 Remove closing cap from service valve (b) on hose line (14).
- 3 Connect oil hose (23) of oil pump (22) to service valve (b) and force oil quantity into system.
- 4 Disconnect oil hose (23) and screw closing cap to service valve.

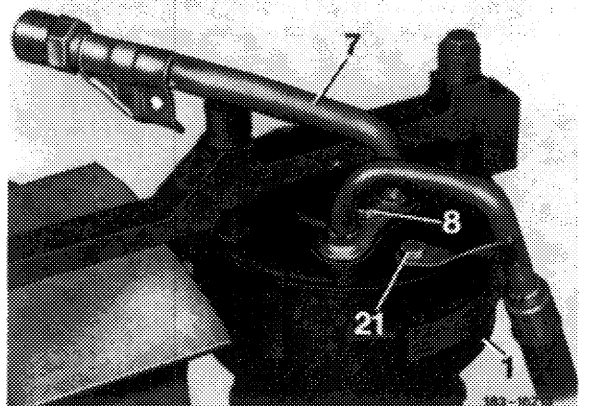


### **Filling oil into refrigerant compressor**

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- 5 Remove refrigerant compressor together with pipe line (83-522).

- 6 Unscrew pipe line (7) from refrigerant compressor (1) and catch drained cold-flowing oil.



7 Let oil run out of refrigerant compressor while holding refrigerant compressor with shaft end in upward direction, permitting oil to run out through pressure and suction port for approx. 10 minutes. Draining of oil is accelerated by turning drive shaft (clutch) several times.

8 Let cold-flowing oil run out of new refrigerant compressor as described under item 3.

9 Check how much oil has run out of original refrigerant compressor and pipe line.

10 Add the same quantity of fresh oil into new refrigerant compressor through suction port if a drained oil quantity of more than 40 cc has run out of removed refrigerant compressor and the system has not been flushed with R 11. If the drained quantity of oil is less than 40 cc, add 90 cc into new refrigerant compressor.

11 If the refrigerant compressor is reconditioned, let cold-flowing oil run out of refrigerant compressor as described under item 3. If the drained quantity of oil is more than 40 cc, add the drained quantity and an additional 30 cc of oil into refrigerant compressor. If the drained quantity of oil is less than 40 cc, add 90 cc of cold-flowing oil into refrigerant compressor.

12 Screw-on pipe line (7) again, while checking O-rings for correct seat and provide with cold-flowing oil.

13 Install refrigerant compressor together with pipe line (83-522).

