

Service Letter

FAA-DER APPROVED

Service Letter: No. 313 A

Subject: Air conditioning system charging procedures change R134a.

Date: May 21, 1996

Applicability: Bell Helicopter Models 206 Series, 407, & 412

Reference:

1. F.A.A./S.T.C. # SH2750NM, Bell 206 series Air Conditioning System.
F.A.A./S.T.C. # SR00222DE, Bell 407 Air Conditioning System.
F.A.A./S.T.C. # SR00066DE, Bell 412 Air Conditioning System.

2. Cabin Air Conditioning Installation Instructions.
206EC-230M (206 A/B)
206EC-202M (206 L Series)
407EC-200M (407)
412AC-200M (412)

3. Plumbing Drawing #
206EC-546 (206 A/B)
206EC-544 (206 L Series)
407EC-500 (407)
412AC-501 (412)

Compliance: Optional, at the discretion of the operator.

Background: Air Comm Corporation maintains a program to refine and upgrade its entire product line. To improve and maintain the operation of the Air Conditioner Compressor Assembly, the charging procedure & placard have been changed. The new placard will be offered as a replacement for previous installations as required. This document provides the new Charging Procedure and a Bill of Materials listing the effected placard.

Purpose: To improve the performance, and operation of the Air Conditioner Compressor Assembly in the Bell 206 series, 407 & 412 helicopters.

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Bill of Materials:

Old Part #	New Part #	Description	Qty.
S-2500EC-32	S-2506EC-6	206 A/B Charging Placard	1
S-2500EC-32	S-2506EC-7	206 L Series Charging Placard	1
N/A	S-2506EC-7	407 Charging Placard	1
S-2500EC-32	S-2506EC-9	412 Charging Placard	1

Note: Remove and discard existing Placard. Install new charging placard using epoxy adhesive per BHT SI.

Obsolete Placard Part No. S-2500EC-32

**CHARGE SYSTEM UNTIL DISCHARGE
PRESSURE FALL WITHIN GIVEN RANGE**

Ambient Temp. °F	High Pressure Gauge Reading
60	95-115
65	105-125
70	115-135
75	130-150
80	150-170
85	165-185
90	175-195
95	185-205
100	210-225
105	220-240

New Placard Part No. S-2506EC-6, -7, -9

SYSTEM CHARGING INSTRUCTIONS:
SYSTEM TO BE SERVICED BY QUALIFIED PERSONNEL.
 R134a Refrigerant—Polyester oil—XH9 Desiccant
 System charge: [] lbs.
 If exact weight of refrigerant charge is not known, use following procedure:
 a- Charge system in .25 lb. increments until minimum outlet temperature & system suction pressure is achieved.
 a- Allow several minutes after each charge increment, to allow temperature & pressure to stabilize.
 The following data is provided as reference information. System pressures can vary from this table depending on Temperature/Humidity relationships.

Ambient Temp. F	High Pressure Gauge Reading	Suction Gauge Reading
55	95-115	30-40
60	105-125	↓ 30-40
65	115-135	
70	130-150	
75	150-170	
80	165-185	
85	175-195	
90	185-205	
95	210-225	
100	220-240	
105	240-260	

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BOULDER, COLORADO**

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CHARGING PROCEDURE

Note: System to be serviced by qualified personnel only!

1. Leak check system in accordance with procedures outlined in the installation instruction manual.
2. Evacuate system for minimum of 30 minutes.
3. Charge system with ___lbs. of R134a refrigerant. System pressure should be **approximately** as shown below. The **most accurate** method of charging a system is to add refrigerant until evaporator outlet air temperature and suction pressure reaches a **minimum** and subsequently start to increase. The optimum charge occurs when evaporator outlet air temperatures are at their lowest. Any additional refrigerant will cause the outlet air temperature to increase and system performance to be degraded. Charge system to the point of noticing first temperature increase, then reduce charge back to the optimum point where outlet air temperatures were lowest.

R 134a REFRIGERANT PRESSURE - TEMPERATURE CHART/ WITH SYSTEM OPERATING

The following data is provided as reference information. system pressures **can** vary from this table depending on Temperature & Humidity relationships.

Ambient Temperature		High Pressure Gauge		Suction Gauge	
F	C	psig	kg/cm	psig	kg/cm
55	12.7	95-115	6.5-8.0	30-40	2.0-3.0
60	15.5	105-125	7.1-8.6	30-40	2.0-3.0
65	18.3	115-135	8.0-9.5	30-40	2.0-3.0
70	21.1	130-150	9.0-10.5	30-40	2.0-3.0
75	23.8	150-170	10.5-12.0	30-40	2.0-3.0
80	26.6	165-185	11.1-12.6	30-40	2.0-3.0
85	29.4	175-195	12.2-13.7	30-40	2.0-3.0
90	32.2	185-205	13.0-14.5	30-40	2.0-3.0
95	35.0	210-225	14.9-16.4	30-40	2.0-3.0
100	37.7	220-240	15.5-17.0	30-40	2.0-3.0
105	40.5	240-260	17.0-18.5	30-40	2.0-3.0

SYSTEM REFRIGERANT & OIL CHARGE

System Description	Refrigerant Charge		Oil Charge	
206 A/B	2.4 lbs.	1.088 kg.	7.4 oz.	218 ml.
206 L Series	2.7 lbs.	1.224 kg.	7.5 oz.	221 ml.
407	2.7 lbs.	1.224 kg.	7.5 oz.	221 ml.
412	6.0 lbs.	2.721 kg.	12.0 oz.	354 ml.

WARNING

Inadequate oil in the system will result in compressor **“lock-up”** and require replacement of the compressor!!