PARAVION® TECHNOLOGY, INC.
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REPORT NO. PR-206H-900M

CABIN HEATER SYSTEM

INSTALLATION INSTRUCTIONS

BELL 206A/B HELICOPTERS

REVISIONS

REV.	DATE	DESCRIPTION	BY
N/C	12/26/85		NS
A	01/20/86	Revised page ii and added page 2 to add kit list. Revised pages I-1, I-2, and I-4 to incorporate misc. minor kit proofing corrections. Revised page A-5 to add note.	NS
B	02/18/86	Revised report to add 206A/B applicability, and delete L series.	NS
C	03/20/86	All pages revised to: Add revised STC Certification. Incorp. misc minor hardware chgs. Revised kit wt, to reflect actual wt and stl line to valve (was 6.5 lbs)	NS
D	06/20/86	Revised pgs 0 and I to reflect Co. name chg. Added note pg I-2.	NS
E	11/13/86	Pg. I-2, S-9504EC-1 was S-9002EC-10 .50 dia was .56.	NS
F	12/01/87	Revised I-2 to remove S-9004EC-1 bracket and add ES39302-1bearing and RG-56 grommet.Revised pg I-3 and I-4 with misc. hardware changes to conform with drawings.	BR
G	05/13/88	Revised I-1 to I-3, and A-4 to incorporate S-5030-2 valve assy.	BR
H	07/19/88	Revised Pg I-2 to add Instl of -11 placard.	BR
I	07/21/88	Revised Pg I-3 to add Instl of optional defrost kit.	BR
J	02/17/89	Revised Pgs 2 and I-2 to change ES39300-1 to -2 and eliminate -10 placard	BR
K	07/16/90	S-9002EC-2 Valve Assy was S-9002EC-1	BR
L	02/05/96	Updated Pgs 2,3 206 A/B Kit List	REB
M	01/07/00	Updated report to current format.	MR
N	02/14/02	Revised install procedure nine to avoid interference of heater on/off valve and flight controls.	GP
P	04/06/09	Added NOTE ref. 1st operation, page 4 paragraph 40	REB

REFERENCES

1. Paravion® Drawing 206EC-900; Heater Installation. (Enclosed)
2. Paravion® Drawing 206EC-910; Heater Ejector/Ducting Installation. (Enclosed)
3. Paravion® Drawing 206EC-500; Bleed Air Plumbing Installation. (Enclosed)
4. AC43.13.1A; Acceptable Practices, Aircraft Alterations and Repair.

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1.0 INTRODUCTION

This document presents a step-by-step procedure for installation of the Paravion® Technology, Inc. 206EC-900 Cabin Heater System in the Bell 206A/B series helicopter. The instructions contained herein are intended to supplement the information contained on the installation drawings.

This manual provides additional information which is required for operation and maintenance of the aircraft. This data is contained in sections II, II, IV, and Appendix A. After completion of this installation, the applicable sections are to be removed from this document, and placed with the appropriate existing drawings.

2.0 INSTALLATION INSTRUCTIONS

NOTE: Apply anti-seize compound (Go-Jo No Lok or equivalent) to all tube fitting threads before installation.

1. Remove upper fwd fairing and open engine cowling. Remove covers from back side of broom closet, both forward seat panels, and the panel under the center collective stick.

2. Locate position of insert on transmission deck (see drawing) and install per drawing requirements. Clean surface of excess adhesive and make sure insert is square and level with surface.

3. If installed, remove and discard fwd heater outlets and all ducting from seat boxes. Remove and discard aft heater outlet/vent but retain attaching hardware.

4. Layout and drill one 2.75" hole and four .250 holes in aft wall of both seat boxes (Ref 2). Deburr holes and seal edges of all holes, including screw holes, with A-4 metalset. Allow metalset to cure for a minimum of 4 hours.

5. Disassemble the hydraulic overflow drain line and AN832-4 bulkhead fitting at the firewall. Enlarge the hole in the firewall to indicated size and install the valve assembly using indicated hardware.

   NOTE: Verify clearance from fuel filter before enlarging or modifying hole location.

6. Locate and drill indicated hole through RH lower corner of firewall. Install AN832-4 fitting and S-5004EC-2 drain tube assembly on aft side of firewall as indicated.

7. Remove the forward hydraulic overflow drain line from the aircraft. Turn it end-for-end, and re-install it using AN832-4 and AN837-4D fittings.

8. Remove the screws which secure the RH forward headliner. Pull the headliner down. Remove enough insulation to facilitate installation of the doubler plate for the heater on/off valve.

9. Reference drawing 206EC-500.

   a. Temporarily install the bleed airline from the firewall and the vertical control tunnel to locate the heater on/off valve.

   b. Assure proper clearance of flight controls per drawing. Match drill and install doubler plate and valve assembly.

   NOTE: Removal of the control shaft from the S-9002EC-2 valve assembly will ease plate location. After plate is located re-install shaft on valve and seal set screw with Locktite #81794 or equivalent.

10. Reinstall as much insulation as practical and drill through cabin top per drawing requirements. Drill hole should be centered on the 0.75" diameter hole in the doubler plate. Then drill indicated hole through headliner, and install ES39302-1 bearing. Install grommet in hole in cabin roof.

11. If there is no access to the back surface of the headliner, then follow indicated drawing note.

12. Locate the valve assembly on the doubler plate. Install the valve assembly using indicated hardware.

    NOTE: It may be necessary to loosen the valve assembly bolts slightly when installing the valve to the cabin roof. Apparent misalignment is normally due to alignment of the bolts in the holes through the valve flange. These holes are oversize and allow readjustment of support bracket orientation. Assure that valve assembly bolts are re-tightened.

    NOTE: The valve shaft should be cut to length, as necessary to facilitate control knob installation adjacent to headliner.

13. Install knob on the valve assembly stem. For aircraft equipped with C-20 engine, install placard on instrument panel in full view of pilot.

14. Remove plug from RH compressor scroll and the plug or particle separator line fitting from left hand scroll, if installed.

15. Install restrictor, packing, and fitting in RH side of scroll.

16. Install union, nut, particle separator fitting if used, restrictor, and 4 each of packing in LH scroll per drawing requirements.

17. Install hose between restrictor and fitting.

18. Install hose between fitting and valve assy at firewall.

19. Position and/or clamp hose as required to prevent chafing.

20. Install tube from firewall to valve and clamp to insert with indicated hardware.

21. Insert indicated tube down through servo support.

22. Remove forward end of RH servo and rotate neck of tube under servo and connect to valve.

23. Reinstall forward end of servo. (Refer to Bell Maintenance Manual, Section 27).

24. Carefully remove trim cover from RH side of broom closet to gain access to two screws that clamp throttle cable.

25. Remove and discard two screws that clamp throttle cable.

26. Install indicated hardware to support tube assembly.

27. Locate and drill indicated hole in side of broom closet near bottom (see Ref 3).

28. Install tube assy forward through control tunnel and connect to seatbox tube assy with indicated union.

29. Clamp tube in place with clamp, screw, nut, washer, and spacer.

30. Locate and drill holes (2) in outer wall of seat boxes and install outboard ejectors per drawing 206EC-910.

31. Locate and drill one .189 dia hole on top of both control tunnel stringers per drawing 206EC-910.

32. Install tee on tube and tee (2) on ejectors. Substitute S-5010-1 tee for AN824-8D tee if installing optional 206EC-510-1 defrost kit.

33. Install (4) outlets and (4) inlets per drawing 206EC-910.

34. Install remaining plumbing in seat boxes and clamp per drawing requirements.

35. Install ducting and clamp in place using tyraps except on inlet side of both inboard ejectors. Refer to drawing 206EC-910.

36. Clamp inboard ejectors to tubes per drawing requirements.

37. Inspect plumbing installation for loose connections and hardware. Correct as necessary.

38. Have assistant move cyclic stick to full travel in every direction with collective stick in both full up and full down position while observing for control system interference. Pay particular attention to area near bottom of broom closet in both fwd seat boxes and RH servo support. Reposition plumbing as necessary to provide a minimum of .50 inch clearance from control system.

39. Reinstall fairings, seat panels, broom closet cover, interior trim and seats.

40. Test run engine and check for heater operation.
NOTE: First-time operation of the heater system may produce a slight smoky odor caused by installation residue within the system. This will clear itself within minutes.

3.0 WEIGHT AND BALANCE DATA

TABLE I

Weight and Balance Data for Bell Model 206A/B

Correct aircraft empty weight and center of gravity as indicated below:

	Weight (lbs)	H-Arm (in)	WX (in-lbs)	Y-Lateral (in)	WY (in-lbs)
Cabin Heater 206-900	13.76	86.6	1191	1.7	23

APPENDIX A

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

1.0 INTRODUCTION

This document provides maintenance and service information for the Paravion® Technology, Inc. 206EC-900 cabin heater installation in the Bell 206 series aircraft.

2.0 REFERENCE DOCUMENTS

1. Basic Bell Service Instructions.

2. AC43.13.1A Acceptable Practices, Aircraft Alteration and Repair.

3. Paravion® Drawings:

   206EC-900; Heater Installation
   206EC-910; Heater Ejectors/Ducting Installation
   206EC-500; Heater Plumbing Installation

3.0 SYSTEM DESCRIPTION AND OPERATION

The Paravion® 206EC-900 cabin heater is shown as a side view projection in figure 1.

This is a bleed-air type heater which consists of bleed air plumbing, a manually operated ON-OFF valve, and four miniature heater-ejectors, which are located under the front seats.

The ON-OFF valve is mounted on top of the cabin and is enclosed by the t1ransmission deck cowling. The valve stem extends through the cabin top. The heater control knob and operation placard are located on the lower side of the cabin headliner, on the RH side of the aircraft.

The two outboard ejectors pump air from the forward cabin and exhaust heated air to the aft cabin. The two inboard ejectors pump heated air to the forward cabin. The air inlets and outlets are located in the front and rear seat box panels.

The bleed air plumbing is connected to the compressor scroll, at two bleed ports. Bleed air restrictors are located at the bleed ports as flow limiters.

4.0 MAINTENANCE INSTRUCTIONS

Conduct the following inspection at each 100 HR inspection interval.

1. Inspect valve for mounting security.

2. Inspect valve for freedom of operation. Disassemble and clean if excessive operating friction exists.

3. Inspect bleed plumbing for insulation, security, and clearance with flight controls (.50" min).

4. Verify security of control knob and placard.

5. The inlet end of the heater circuit contains an acoustical dampener/cabin air filter. This filter should be changed annually (prior to start of the heating season), or more often if it becomes blocked. The filter (P/N S-9501EC-7) can be ordered through the customer service department of Paravion® Technology, Inc.

6. The flexible ducting which connects the ejectors, and air inlet/outlet adapters contains an acoustical liner. This liner should be inspected annually to insure free air passage of the ducts.

7. For compressor wash, turn heater valve off. The S-5030-2 valve assembly will drain any water in the bleed air lines.