

SERVICE BULLETIN



REPUBLIC AVIATION CORPORATION
FARMINGDALE, LONG ISLAND, NEW YORK
SERVICE DEPARTMENT

OCTOBER 2, 1947

OPTIONAL CHANGE

SERVICE BULLETIN NO. 16

Subject: Heater installation on all model Seabees

Reason for Change: To provide a heater.

Description of Change: This change involves installing a heater unit, necessary ducts, fuel lines, controls and wiring, and shall be accomplished as follows:

1. Remove left hand bow window, instrument panel crown and front seats.
2. Remove 20 pounds from bow ballast. (Use 5 AN3-21A bolts in kit to replace existing long bolts).
3. Place shelf 17F87057-1 in location shown on drawing 17F87050. Top of shelf should be 9" above cabin floor. Using pilot holes in shelf as guides, drill eleven (11 #18 holes (.169"). Fasten shelf in place with (9) AN 525-832-7 screws, AN 365-836 nuts and (2) AN 507-836-7 screws and AN 365-836 nuts as shown on drawing 17F87050 using 3M cement around holes.
4. Cut holes in cabin side skin as shown in View C-C of drawing 17F87050 centerline of this hole is to be 6-13/16" above cabin floor.
5. Cut hole in partition as shown in View A-A of drawing 17F87050.
6. Place Waste Pipe 17F87058-1 over exhaust pipe of heater so that the two pipes overlap one inch and diagonal cut off of pipe is as shown on View B-B of drawing 17F87050. Drill a 5/16 inch hole through the two pipes using an edge distance of 1/2 inch. Fasten waste pipe to heater exhaust pipe using an AN 393-53 pin and AN 380-2-1 cotter pin as shown on View B-B of drawing 17F87050.
7. Place shroud 17F87058-2 over waste pipe so that flange of shroud is against heater and diagonal cut off of shroud as shown on View B-B of drawing 17F87050. Using holes in flange of shroud as guides, drill four #30 (.128) holes in case of heater being sure not to drill too deeply into heater. Attach shroud to heater with four (4) S-598-8-4 screws using Prestite tape as a seal.

SERVICE BULLETIN NO. 16 (CONT.)

8. Install one knife disconnect 31770 on the three leads coming from the heater relay box as shown on drawing 17F82054. These leads are black, black with yellow tracer and black with red tracer. Inside the relay box remove the black with blue tracer wire which has a free end from Terminal No. 5. Leave connected the black with blue tracer wire which goes to the blower motor.
9. Attach Bracket 17F87054-1 to blower as shown on drawing 17F87050 using (4) S-589-8-4 screws.
10. Place duct 17F87053-1 as shown on drawing 17F87050 on outlet end of heater. Using holes in duct as guides drill two (2) #32 (.116) holes in case of heater. Attach duct to heater with two (2) S-589-8-4 screws.
11. Place heater and blower assembly on shelf in position as shown on drawing 17F87050. Bracket at aft end of assembly is to be attached to shelf with two AN 526-832-8 screws. Front end of heater is to be held in place with clamp 17F87055-1. This is to be fastened to shelf with two (2) AN 526-832-8 screws.
12. Fasten end of heater duct to partition using a S-326-6 x ½ clip. Drill #32 (.116) holes through clamp, duct and partition and fasten clip in place with two (2) S-589-8-4 screws as shown on drawing 17F87050.
13. Place shield 17F87059-1 over end of waste pipe on outside of cabin skin as shown on drawing 17F87050. Using holes on flange of this shield as guide drill seven (7) #18 (.169) holes. Fasten shield in place with seven (7) AN 525-832-7 screws and AN 365-836 nuts.
14. Remove leading edge fillet of cowl and left-hand side engine cowl.
15. Remove present plug fitting on left hand side of carburetor from fuel pressure take-off point and replace this with a 17F84011-1 elbow as shown on drawing 17F87051. Attach an AN 856-A4A-20 hose to elbow.
16. Assemble valve no. 450 in position shown in detail "B" of drawing 17F87051 on angle 17F87063-1 with two (2) AN 3-12A bolts, AN 960-10L washers and AN 365-1032 nuts.
17. Place assembly in place on aft left hand cowl support as shown on 17F87051. Using holes in angle as guide drill two (2) #10 (.194) holes in cowl support and fasten assembly in place with two (2) AN3-4A bolts and AN 36-1032 nuts. Connect free end of hose installed under paragraph 15 to aft part of valve and place an AN 822-4D elbow in forward port.
18. Drop upholstery from cabin roof along the left hand side . Drill 3/8" diameter hole and 7/16" diameter hole in frame as shown on detail "A" of drawing 17F87051.

19. Locate S-9796L-3 Clamp as shown on detail "b" of drawing 17F87051. Drill two (2) #18 (.169) holes through clamp and flange of cowl support. Fasten clamp in place with two (2) AN 526-632-7 screws, AN 365-632 nuts.
20. Install 3A701 Push-Pull control through 3/8" hole drilled under 18. Control is to be routed aft to the valve installed under 16 passing through existing engine control clamps and opening in firewall as shown on drawing 17F87051. Attach end of control to arm on valve with a 3A665-1/8 swivel and AN 960-4161 washer. Check push-pull control for proper operation and travel.
21. Connect one end of 17F87051-4 tube to elbow on valve installed under 17. Pass the end of the tube aft from the inside of the cabin through the existing hole and fairlead in the firewall to the valve. If necessary open up hole in the firewall and relocate bolts holding fairlead to obtain required specs. Tube is to pick up existing engine control clamps on firewall.
22. Route tube forward along left side of roof to 7/16" diameter hole drilled under 18. Pass tube through this hole and down along left hand door post as shown on drawing 17F87051. Fasten tube to roof of cabin and door post with six (6) AN 742-B6C clamps, AN 525-10-10 screws and AN 365-1032 nuts. Drill #10 (.195) holes for these screws. Cut AN 931-4-7 grommet screws one side and install this around the tube in the 7/16" diameter hole.
23. Re-seal holes in firewall where fuel line and control pass through using Prestite tape provided and 3M cement.
24. Place an AN 822-4D elbow in the opening of the solenoid valve on the heater. Connect an AN 856-A4A-24 hose to this elbow. Connect other end of this tube to tube installed under 21 and 22 using an AN 815-4D union.
25. Reinstall engine grill, left hand side and top engine cowl and replace cabin roof upholstery.
26. Attach AN 3023-1 Switch to Switch bracket 17F87052-1 using two (2) AN 526-632-7 screws. Connect 17F82054 wires Nos. 102, 104, 105, 106 and 107 to this switch as shown on drawing 17F82054.
27. Place switch and bracket assembly in position shown on drawing 17F87050. Using holes in bracket as guides drill two (2) #18 (.169) holes in doorpost. Fasten assembly in place with two (2) AN 526-832-9 screws and AN 365-832 nuts.

28. Place circuit breaker AN 3161-P-15 under the instrument panel shelf in approximate position as shown on drawing 17F87050. Using two (2) mounting holes as guides drill two (2) #18 (.169) holes in the shelf and fasten circuit breaker in place with two (2) AN 526-632-7 screws.

29. Referring to drawing 17F82054 make the following wire connections:

- (a) Connect one end of wire #101 to same terminal post of position and dome light circuit breaker that wire #22 and #23 are already connected to. Connect other end of wire #101 to circuit breaker installed under 28.
- (b) Connect free end of wire #104 and one end of wire #103 to free terminal post of circuit breaker installed under 28.
- (c) Connect free ends of wires #102, #103 and #105 respectively to black wire, black wire with red tracer and black wire with yellow tracer using sleeves 17F82054. Sleeves should be fastened in place over the quick disconnects with sewing cord at one end. Refer to drawing 17F82054.
- (d) Tape wires together and to surrounding structure. Any wires existing or newly installed, which are close to the heater should be held away from the heater with suitable clamps.

Note: Some blower supplies have 6-volt motors. Therefore two parallel 1 ohm 75 watt resistors must be installed in series with the black with blue tracer lead from blower terminal #5. These resistors are to be installed on the shelf next to the heater with AN 526-832-9 screws, AN 960-8 washers and AN 365-832 nuts.

30. Install decalcomania 17F87061-1 in position shown on view D-D of drawing 17F87051.

31. Reinstall left hand bow window and front seats.

32. Start engine and check operation of heater unit.

33. The use of a Stewart-Warner heater in the Seabee cause a natural deflection in compass headings. The deflection occurs only when the blower is in operation and can be compensated by either of the two following methods:

- (a) Calibrate the compass with both blower-on and blower-off conditions and attach a correction card for each to the instrument panel for ready flight reference.
- (b) When making true compass headings on cross-country flights switch to blower-off position momentarily.

34. Make suitable entry in log book.

Note: C.A.A. (FAA) approval of this heater installation is based on a fire extinguisher being installed in the airplane, Item 1265A.

Parts Required:

The following parts required will be furnished in kit form as Spares Item 1492.

<u>Part Number</u>	<u>Description</u>	<u>No. Per set</u>
17F87050-1	Heater Installation including the following:	1
	Stewart-Warner No. 977-B-1 Heater	1
	Stewart-Warner No. 992-B Blower Assy.	1
	17F87050 Rev. "B" Blueprint	1
	2 oz. Tube Cement	1
	17F87052-1 Plate	1
	AN 3027-1 Switch	1
	<u>Attaching Hardware for Plate and Switch</u>	
	AN 526-832-9 Screws	2
	AN 526-632-7 Screws	2
	AN 365-832 Nuts	2
	17F87053-1 Duct Assembly	1
	<u>Attaching Hardware for Duct Assy.</u>	
	S-326-6 x 1/2 Angle clip	1
	S-589-8-4 Screw	4
	17F87054-1 Bracket	1
	<u>Attaching Hardware for Bracket</u>	
	S-589-8-4 Screws	4
	AN 526-832-8 Screws	2
	17F87055-1 Clamp	1
	<u>Attaching Hardware for Clamp</u>	
	AN 526-8-32-8 Screws	2
	17F87057-1 Shelf	1

<u>Part Number</u>	<u>Description</u>	<u>No. Per set</u>
	<u>Attaching Hardware for Shelf</u>	
	AN 525-832-7 Screws	9
	AN 365-836 Nuts	11
	AN 507-832-7 Screws	2
	17F87058-1 Waste Pipe	1
	<u>Attaching Hardware for Waste Pipe</u>	
	AN 393-53 Pin	1
	AN 380-2-1 Cotter Pin	1
	17F87058-2 Shroud	1
	<u>Attaching Hardware for Shroud</u>	
	S-589-8-4 Screws	4
	5/8 x 10 2D-58E Prestite Tape	
	17F87059-1 Shield Assembly	1
	<u>Attaching Hardware for Shield</u>	
	AN 525-832-7 Screws	7
	AN 365-836 Nuts	7
	AN 3161-P-15 Circuit Breaker	1
	<u>Attaching Hardware for Circuit Breaker</u>	
	AN 526-632-7 Screws	2
	<u>Hardware for Holding Ballast in place</u>	
	AN 3-12A Bolts	5
17F87051-1	Fuel System Installation Including the following:	
	17F87061-1 Decal	1
	17F87051 Rev. "A" Blueprint	1
	17F84011-1 Elbow	1
	AN 856-A4A-24 Hose	1

SERVICE BULLETIN NO. 16 (CONT.)

<u>Part Number</u>	<u>Description</u>	<u>No. Per set</u>
	AN 856-A4A-20 Hose	1
	AN 822-4D Elbow	1
	AN 815-4D Union	1
	3A701 Control (Red Knob)	1
	#450 Electrol Valve Assembly	1
	<u>Attaching Hardware for Valve</u>	
	AN 822-4D Elbow	1
	3A665-1/8 Swivel	1
	AN 960-416L	1
	AN 3-12A Bolt	2
	AN 365-1032 Nut	2
	AN 960-10L Washer	2
	17F87051-4 Tube Assembly	1
	<u>Attaching Hardware for Tube</u>	
	AN 818-4D Nut	2
	AN 819-4Z Sleeve	2
	AN 742-D6C Clamp	6
	AN 525-10-10 Screw	6
	AN 365-1032 Nut	6
	AN 931-4-7 Grommet	2
	17F87063-1 Angle	1
	<u>Attaching Hardware for Angle</u>	
	AN 3-4A Bolt	1
	AN 365-1032 Nut	1
	S-9796-3L	1
	<u>Attaching Hardware for Clamp</u>	
	AN 526-632-7 Screw	2
	AN 365-632 Nut	2

<u>Part Number</u>	<u>Description</u>	<u>No. Per set</u>
17F82054-1	Wiring Harness; including the following: 3 #31770 Terminals (AMP) 3 17F82041-2 Sleeve 1 17F82054 Wire #101 incl. #31398 Terminals 1 17F82054 Wire #102 incl. #31398 & 31770 Terminals 1 17F82054 Wire #103 incl. #31398 & 31770 Terminals 1 17F82054 Wire #104 incl. #31398 Terminals 1 17F82054 Wire #105 incl. #31398 & 31770 Terminals 1 17F82054 Wire #106 incl. #31398 Terminals 1 17F82054 Wire #107 incl. #31398 Terminals	

17F82054	Rev. "A" Blueprint	1
----------	--------------------	---

NOTE: The following is to be included
only with 6-volt heater and blower
assemblies.

1 Ohm 75 Watt Resistors	2
Resistor Clips	4
#10 AWG Wire	2 ft.

Attaching Hardware for Resistors

AN 526-832-9 Screws	4
AN 365-832 Nuts	4
AN 960-8 Washers	4

Drawings Required: The following required drawings will be furnished in the kit:

- 17F82054 – Wiring Diagram – Cabin Heater
- 17F87050 – Heater Installation – Cabin
- 17F87051 – Heater Fuel System Installation

Time Required: Approximately 24 man-hours are required to accomplish this change.

W. H. Ehmann
Service Manager