

CHAPTER

75

AIR

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GENERAL

The carburetor heating air (used on the Z 143 L airplane only) is supplied from the heat exchanger of right exhaust silencer.

The engine cooling air to the engine cylinders is taken in through holes in fwd engine cowl.

CARBURETOR HEATING OF Z 143 L

DESCRIPTION AND OPERATION

The carburetor heating is controlled by carburetor heater control (Fig. 75-1, item 1). The teleflex cable transfers the movement from the carburetor control to the shaft (2) of flap valve (3).

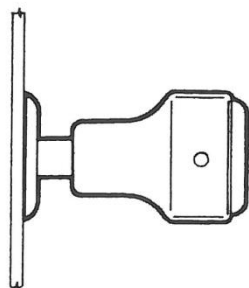
The carburetor heater control may be set to two positions:

- in pushed-in position the carburetor heating is closed
- in pulled-out position the carburetor heating is turned on.

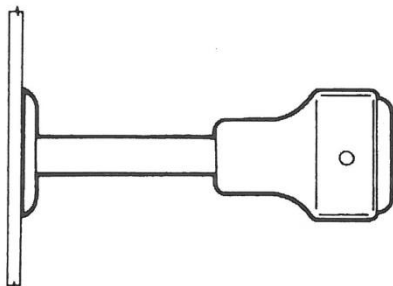
The carburetor heater control is located in console under the instrument panel.

Hose from the heat exchanger of right exhaust silencer supplies the hot air (4) for carburetor heating (Fig. 21-1, item 2).

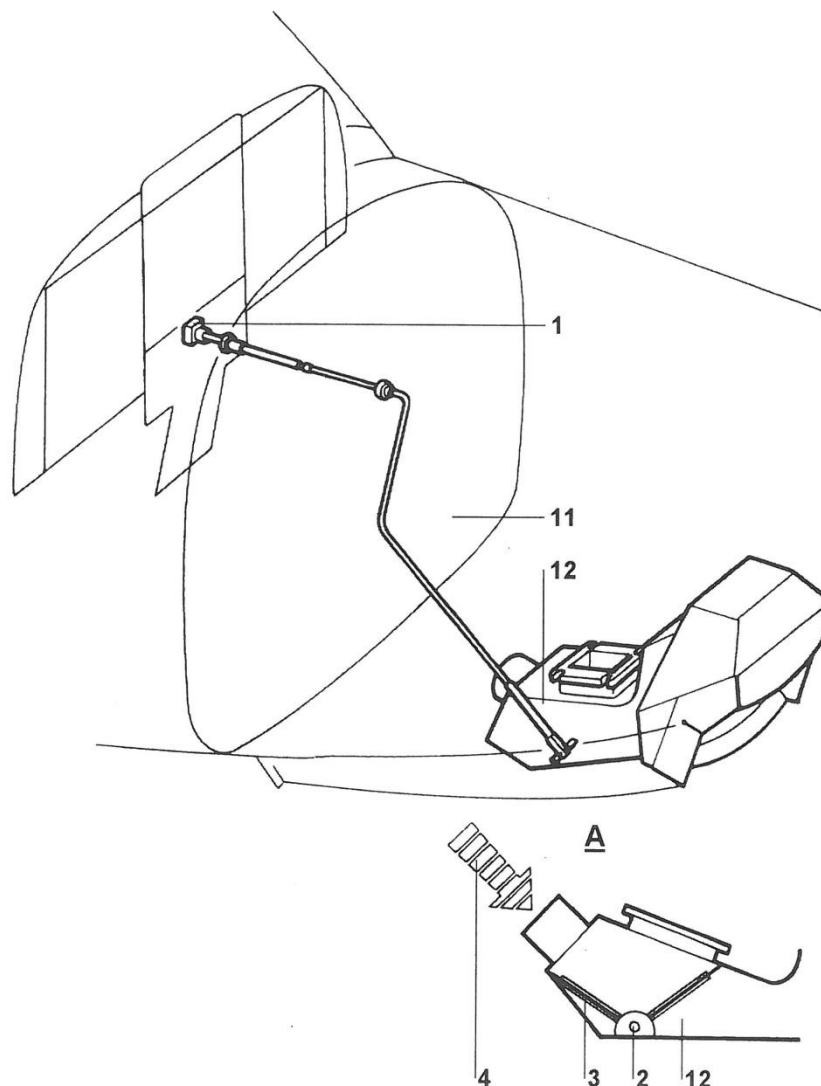
Positions of carburetor heater control:



- flap valve (Fig. 75-1, item 3) shuts passage of hot air for carburetor heating



- flap valve (3) is opening the passage of hot air for carburetor heating



A ... flap valve (3) opens passage of hot air for carburetor heating

1 ... carburetor heater control

2 ... shaft

3 ... flap valve

4 ... supply of hot air

For information only:

11 ... firewall

12 ... chamber

Fig. 75-1 System of carburetor heating

MAINTENANCE

REMOVAL / INSTALLATION

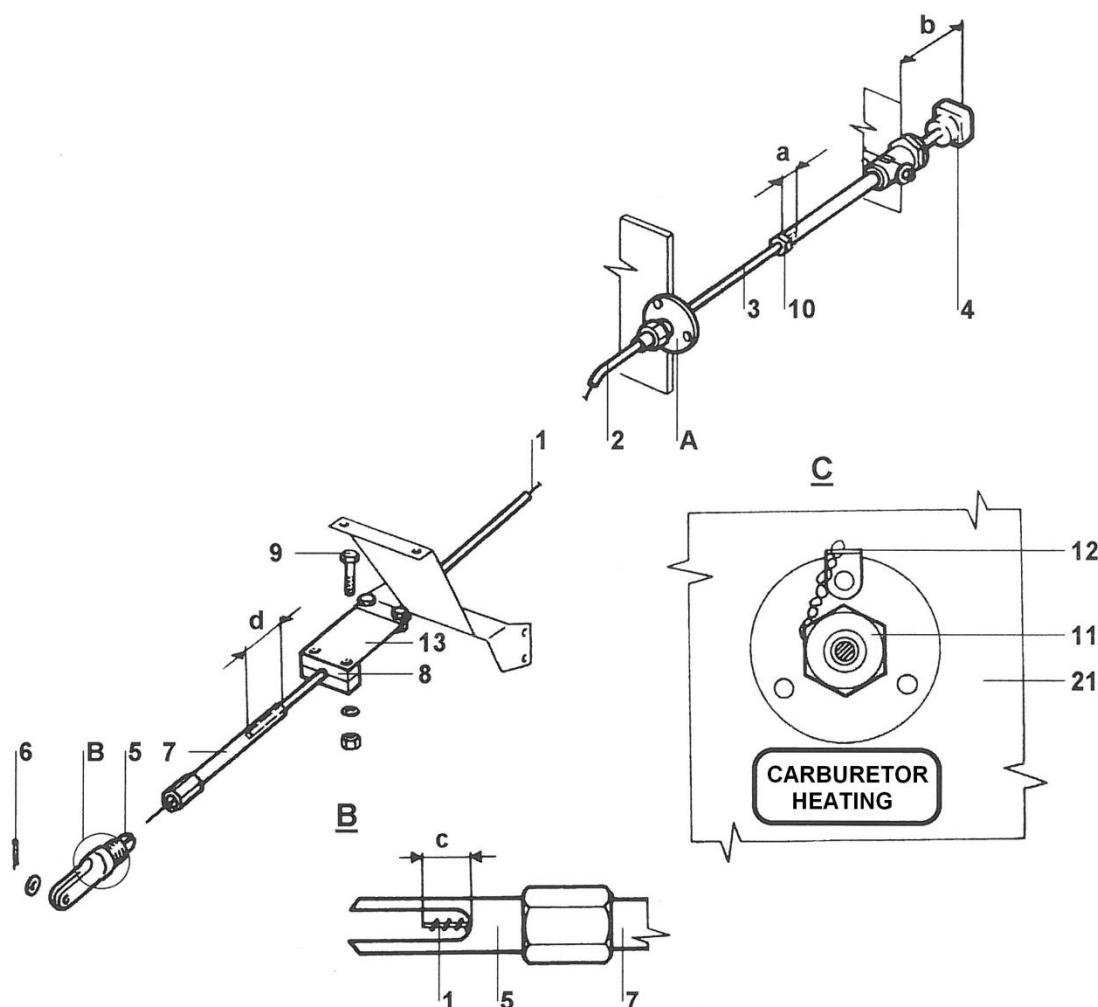
REMOVAL OF CARBURETOR HEATING CONTROL

Preparatory works

- a) Open engine side cowlings (Fig. 71-1, item 4).
- b) Set fwd seats to very fwd position.

Removal of teleflex cable and tubes of carburetor heater control

- a) Disjoin having removed the cotter pin (6) and washer, the fork (Fig. 75-2, item 5) from the shaft of flap valve.
- b) Unlock and unscrew the fork (5) from the guide (7). Remove guide from the fwd tube (2).
- c) Unscrew bolts (9) from the support (8) to release fwd tube (2) from its hold.
- d) Unlock and unscrew cap nut (11).
- e) Unlock and unscrew nut (10). The pushrod of carburetor heater controller is provided with milled flats for wrench to be able to unscrew threaded ends of teleflex cable (1) from the pushrod of controller (4).
- f) Pull the teleflex cable (1) from the tube to the airplane cockpit.
- g) Pull into the engine compartment the fwd (2) and rear (3) tubes from the bushing (A) in firewall.



A ... bushing in firewall

B ... teleflex cable overhanging into the fork

C ... locking of cap nut of bushing (A)

a ... length of screwed in part of teleflex cable to pushrod of heater control; a = 12 mm (0,5 in)

b ... distance between face of carburetor heater controller and console; b = 60 mm (2,36 in)

c ... teleflex cable overhanging into the fork; c = 10 mm (0,40 in)

d ... length of fwd tube insertion into guide; d = 35 mm (1,40 in)

1 ... teleflex cable

2 ... fwd tube

3 ... rear tube

4 ... carburetor heated controller

5 ... fork

6 ... cotter pin

7 ... guide

8 ... support

9 ... screw

10 ... nut

11 ... cap nut

12 ... clip

13 ... flat spring

For information only:

21 ... firewall

Fig. 75-2 Guidance of teleflex cable of carburetor heater control

INSTALLATION OF CARBURETOR HEATING CONTROL

- a) Insert from engine compartment, the rear insertion piece (6) and rear tube (3) into the bushing (Fig. 61-4, item 4).
- b) Insert teleflex cable (1) greased with Aero Shell Grease 22 + 3% MOLYKOTE grease into the rear tube (3) with the threaded side to the pushrod of heater controller.
- c) Provide bushing body (4) with ring (8) and insert in the fwd tube (2) and fwd insertion piece (7). Screw in the nut (5) and tighten it with 20 Nm (14,8 lbft) torque.
- d) Check if the marking center punches (9) of tubes (2, 3) are 5 to 7 mm (dimension a) from the faces of insertion pieces (6, 7).
- e) Lock the cap nut with safety wire (Fig. 75-2, view C).
- f) Join teleflex cable (1) with carburetor heater controller (4):
 - screw nut (10) and insert tab washer upon the threaded end of teleflex cable
 - screw threaded end of teleflex cable 12 mm (dimension a) into the pushrod of heater controller (4)
 - tighten the nut (10) with recommended 6 to 7,2 Nm (4,4 to 5,3 lbft) torque to the heater controller and lock it with tab washer.
- g) Join the fwd tube (2) to engine console:
 - provide fwd tube with support (8) and fix it to flat spring by screws (9) with washers and nuts.
- h) Set carburetor controller (4) to maintain 60 mm (2,4 in) (dimension b) distance between face of controller and cockpit console.
- i) Provide fwd tube (2) with guide (7) and insert fork (5) upon teleflex cable (1).
- j) Join fork (5) to the flap valve control shaft set to COLD position. Insert the fork upon shaft, insert washer and lock the joint with the stainless steel cotter pin (6).
- k) Screw the guide (7) upon the fork (5) and lock the joint with safety wire.

NOTE

The teleflex cable should overhang into the fork (5) for about 10 mm, i.e. 0,4 in (dimension c). The fwd tube (2) should be inserted into the guide (7) for about 35 mm, i.e. 1,4 in (dimension d).

Final work

- a) Check serviceability of carburetor heater system.
- b) Shut side engine cowlings (Fig. 71-1, item 4).

INSPECTION / CHECK

CHECK OF CLEANNES OF CARBURETOR HEATING SYSTEM

At the inspection after 100 operation hours or after 1 year and in case of detection of bulky dirt objects as straw and hay, etc. upon the air filter (section 71-60-00), check the heat exchanger of the noise silencer R.H., the interior and vortex inserts inclusive (Fig. 75-3):

- a) Open right engine cowling (Fig. 71-1, item 4).
- b) Dismount „C“ shape springs which fix the noise silencer R.H. and the heating outlet (Fig. 21-1, item 11; Fig. 75-3, item 3) and remove the noise silencer and heating outlet.
- c) Check the heat exchanger of the noise silencer R.H. (1) and the heating outlet (3), the interior and vortex inserts inclusive. In case a crack or loosen or missing rivet is found, replace original duralumin vortex inserts with new ones made of stainless steel

Necessary material :

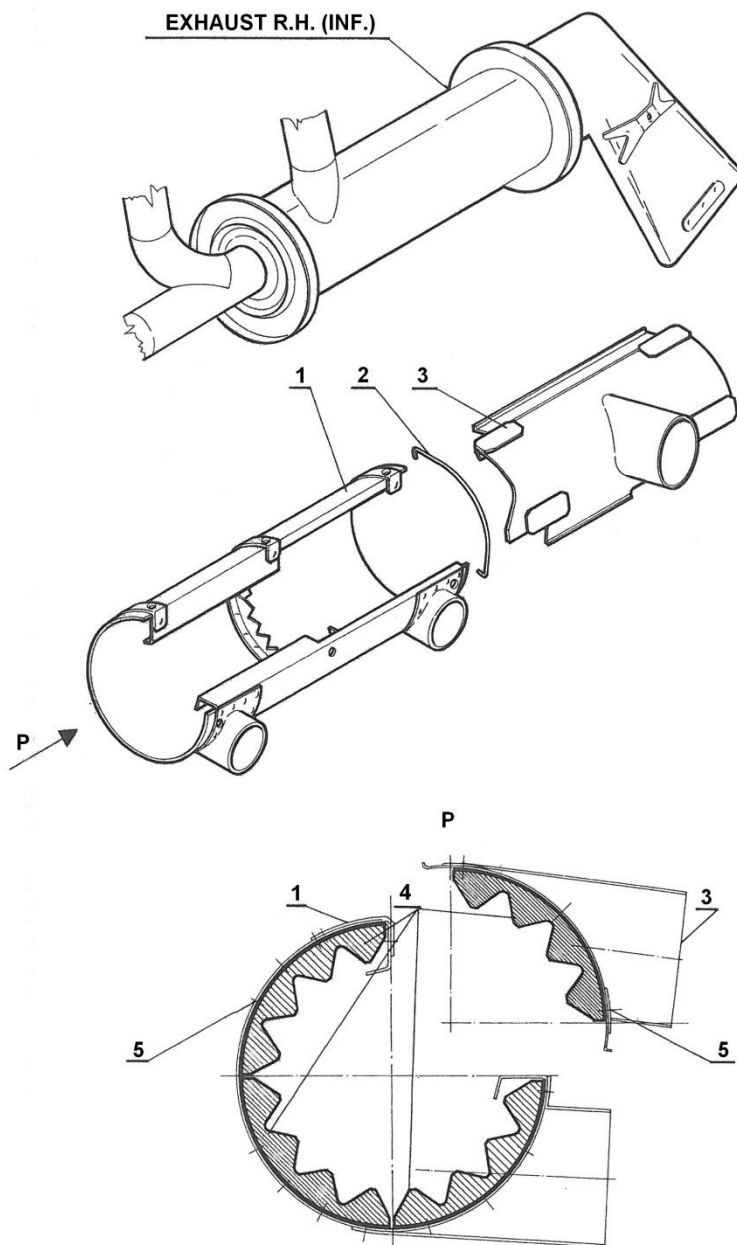
- vortex inserts of stainless steel; P/N L 143.6629-00.04; 4 pcs
- rivets of stainless steel; AVDEL BE110408; Ø 3,2x6; 16 pcs

NOTE:

Drill the holes of Ø 3,3 mm for the rivets of Ø 3,2x6.

Proceed in case of dirt detection in heat exchanger and hose space as follows:

- d) Remove bottom engine cowling (section 71-10-00).
- e) Remove chamber (Fig. 75-1, item 12) from the carburetor:
 - Disjoin by removing cotter pin (6) and washer, the fork (Fig. 75-2, item 5) from shaft of flap valve
 - Remove hose from the chamber
 - Unscrew four screws fixing the chamber to carburetor.
- f) Check cleanness of carburetor diffuser, chamber (Fig. 75-1, item 12), and hoses of chamber. Remove entire dirt if any.
- g) Fix the chamber to the carburetor by screws inserting sealing pad between carburetor and chamber beforehand. Provide chamber with hoses.
- h) Insert fork (Fig. 75-2, item 5) upon shaft of flap valve and lock joint with stainless steel cotter pin (6).
- i) Put on the heat exchanger and the heating outlet on the noise silencer R.H. (Fig. 21-1, item 11; Fig. 75-3, item 3) and lock them with „C“ shape springs.
- j) Install bottom engine cowling (section 71-10-00) and shut side cowlings.



- 1 - heat exchanger R.H.
- 2 - spring
- 3 - heating outlet
- 4 - vortex insert
- 5 - river

Fig. 75 - 3 Carburetor heating system

APPROVED REPAIRS

REPAIR OF CARBURETOR HEATING CONTROL

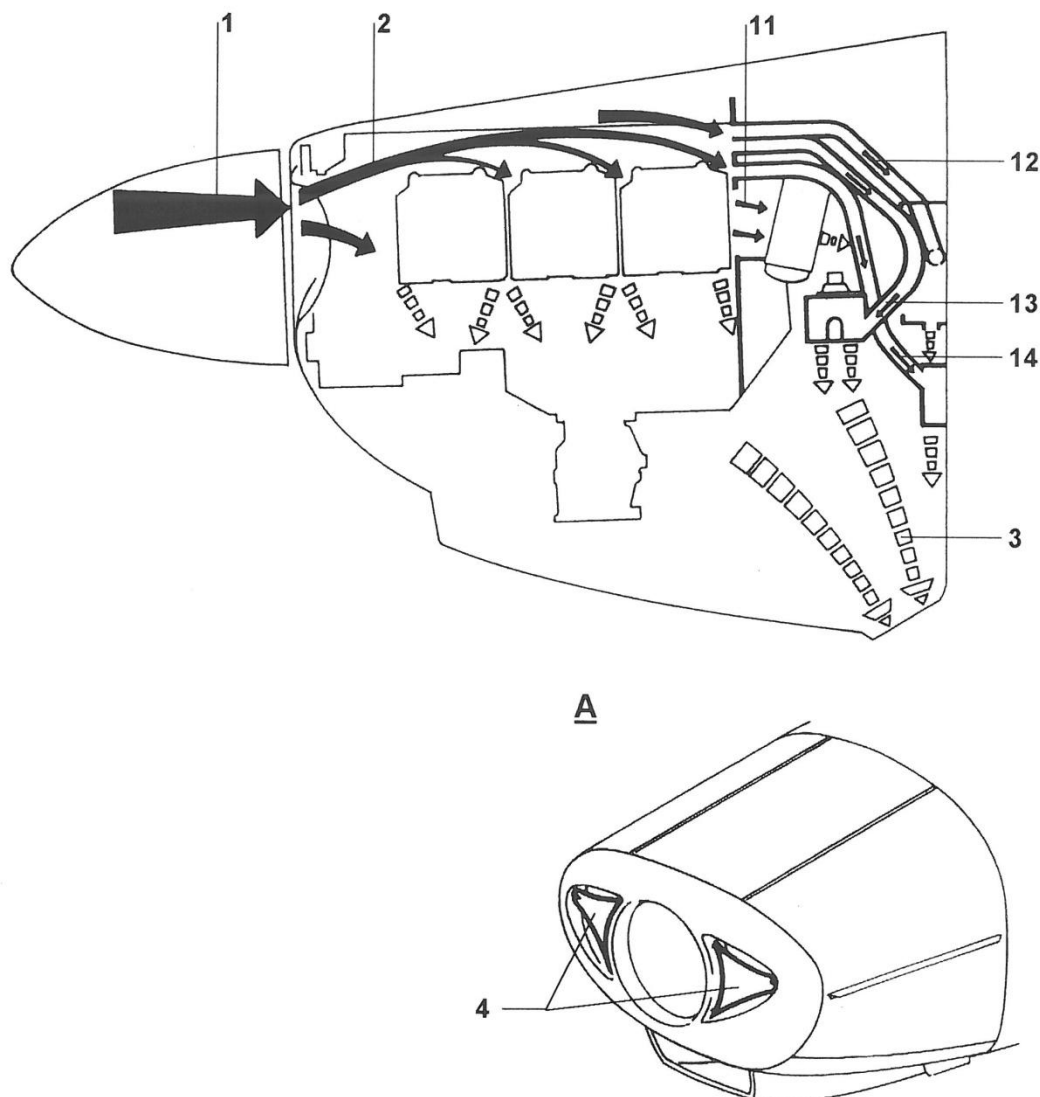
Fault	Remedy
1) Faulty flat spring (Fig. 75-2, item 13) with cracks or deformations	Replace faulty flat springs.
2) Some deformed or worn out control tubes in the spots of tube fixing	Replace faulty tube.
3) Cracked, deformed, and/or dented holes of fork.	Replace faulty fork.
4) Cracks in pins.	Replace cracked pins
5) Excessive distance of center punches upon control tubes from the faces of bushing insertion pieces (Fig. 61-4, dimension „a“).	Remove shifted tube, repair rolled off end, or replace faulty tube.
6) Cracks, loosen or missing rivets on vortex insert (Fig. 75-3, item 4)	Replace vortex inserts of aluminium alloy with new ones made of stainless steel (see page 75-7 for replacement procedure)

ENGINE COOLING

DESCRIPTION AND OPERATION

The engine cylinders are cooled by air. Ambient air (Fig. 75-3, item 1) enters the holes in fwd engine cowling and cools the engine cylinders (2). The hot air (3) outlets from the engine compartment through the cut-out behind behind bottom engine cowling.

In cold weather conditions the holes in fwd engine cowling may be provided with sheet shields (4) to increase low temperature of cylinder heads or engine lube oil.



cold air
 heater air

A ... shield installation in winter season

- 1 ... inlet of ambient air
- 2 ... air for engine cylinder cooling
- 3 ... outlet of hot air
- 4 ... L., R. shield

For information only:

- 11 ... air for cooling the oil in oil radiator
- 12 ... air for cooling the board battery
- 13 ... air for cooling the fuel pump
- 14 ... air for cooling the voltage regulator

Fig. 75-4 Engine cooling

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