

CHAPTER

23

COMMUNICATION

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GENERAL

The electric circuits of communication and navigation equipment are controlled by **COMM/NAV 1** and **COMM/NAV 2** switches (section 24-50-00).

The individual parts of communication equipment are equipped in their control units with **ON/OFF** switches that enable independent switching of pertinent units.

The specification and wiring of communication equipment is issued in chapter 95 (SUPPLEMENTS).

COMMUNICATION TRANSCEIVER

DESCRIPTION AND OPERATION

CAUTION

THE HF POWER OF COMMUNICATION TRANSCEIVER IS IN CASE OF ELT INSTALLATION DUE TO ANTENNA COUPLING REDUCED TO 16 W ONLY.

The communication transceiver is determined for mutual communication of aircrew and ATC. The communication transceiver may operate in frequency, programmed and channel modes and in the mode of direct tuning.

The instrument is designed for instrument panel installation. The antenna of the transceiver is installed in the upper side of fuselage just in front of dorsal fin. The antenna of second COMM transceiver (if installed) is located upon rear bottom part of fuselage.

The board network wiring diagram of COMM transceiver (Circuit diagram F) and specification are issued in chapter 95 (SUPPLEMENTS).

REPAIRS

1. Transmitter

Fault	Possible reason	Remedy
Transmitter of some transceiver is not operating.	The keying circuit is open.	Check transmitter operation: When keying push button is pressed the T symbol should be displayed in display. Check voltage at pertinent pins of connector. Repair faulty parts, replace cut wires and faulty elements.
	Faulty transmitter.	Hand the instrument to certified repair station.
Insufficient power output of transmitter.	Faulty antenna system.	Check output power of transmitter by wattmeter. Check antenna system, coaxial cable and connector. Repair or replace faulty parts.
	Faulty transmitter	Send instrument to certified repair station.

2. Receiver

Fault	Possible reason	Remedy
Weak reception during communication.	Faulty antenna system.	Check antenna system, coaxial cable and connectors. Repair or replace faulty elements.
	Faulty receiver.	Send instrument to certified repair station.

EFFECTIVITY: All

23-10-00

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MAINTENANCE

INSPECTION / CHECK

CHECK OF COMM TRANSCEIVER

CAUTION

THE TRANSCEIVER CHECK AND EVALUATION OF MEASUREMENT RESULTS MAY BE DONE BY CERTIFIED PROFESSIONAL.

1. Used measuring instruments

- a) SWR wattmeter equipped with cables with pertinent connectors. The measuring instrument should be regularly calibrated and the reading accuracy should be within $\pm 5\%$.
- b) During transceiver measurement at least one approved serviceable headset, i.e. set of earphones and a microphone should be used.
- c) The transceiver during measurement should be fed either from board battery or from approved GPU.

2. Check and measurement of transceiver

- a) Make sure the voltage of board electric network is at least 22 V to 30 V.
- b) Check correct operation serviceability of all transceiver control elements including illumination. All control elements and illumination should be serviceable.
- c) Disconnect antenna connector of transceiver and connect SWR wattmeter – see previous subsection 1, part a).
- d) Measure feeding current during reception and transmission and make sure the power requirements do not exceed transceiver specified data.
- e) Measure powers output of transceiver during transmission and subtract SWR. Make measurements at three frequencies, i.e. at the bottom, middle and top of frequency band.
The minimum power output according to type of transceiver, should be 4 W and SWR should not exceed 3:1 ratio.
- f) Connect antenna cable to transceiver and check communication with ground station, as with ATC.
The transceiver should exhibit during communication good features (power, modulation and noise).

3. Activity in case of fault occurrence

- a) In case the measured value is less than 4 W it is necessary to send transceiver for repair.
- b) Repair defect of antenna system or replace coaxial cable if SWR ratio exceeds 3:1 ratio.
Repeat measurement after antenna system repair.

EFFECTIVITY: All

4. Record on transceiver check and measurement

Record results of check and measurement to Record on transceiver serviceability check and measurement.

RECORD ON TRANSCEIVER SERVICEABILITY CHECK AND MEASUREMENT

SPECIFICATION

Z 143 L airplane* Z 143 LSi airplane*	Transceiver		Measuring equipment	
serial number	type	Production number	type	date of calibration

* delete as appropriate

SERVICEABILITY CHECK AND MEASUREMENT

No.	Procedure		Measured data	Pass / Fail
1.	Board network voltage		V	
2.	Check of control elements		-----	
3.	Current consumption	Reception	A	
		Transmission	A	
4.	Transmitter HF power	Bottom limit of band	W	
		Middle range of band	W	
		Upper limit of band	W	
5.	SWR	Bottom limit of band		
		Middle range of band		
		Upper limit of band		
6.	Communication check		-----	
7.	Overall evaluation		-----	

Measured by

Date

Supervised

EFFECTIVITY: All

23-10-00

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EMERGENCY LOCATOR TRANSMITTER

DESCRIPTION AND OPERATION

The ELT is determined for position location of airplane after emergency (crash) (section 25-60-00).

The ELT is placed under the right floor of upper cargo compartment and it is accessible through the door in fuselage port side. The ELT remote control is on instrument panel.

The antenna of ELT is located on the upper right side behind the cockpit while portable antenna is fixed to ELT body.

The ELT specification is issued in Chapter 95 (SUPPLEMENTS).

REPAIRS

Fault	Possible reason	Remedy
The ELT does not operated.	Faulty battery(ies).	Replace faulty or expired battery (ies). Check ELT serviceability with board antenna disconnected.

EFFECTIVITY: All

23-11-00

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MAINTENANCE

REMOVAL / INSTALLATION

REMOVAL OF ELT

1. Removal of ELT E - 01

- a) Turn switch (Fig. 23-1, item 4) upon ELT control panel (1) to **OFF** position.
- b) Disconnect antenna (2) and remote control (3) connectors.
- c) Open fixing stripes (7) joining ELT to console (9) and remove ELT from the airplane.

Replacement of E - 01 batteries

CAUTION

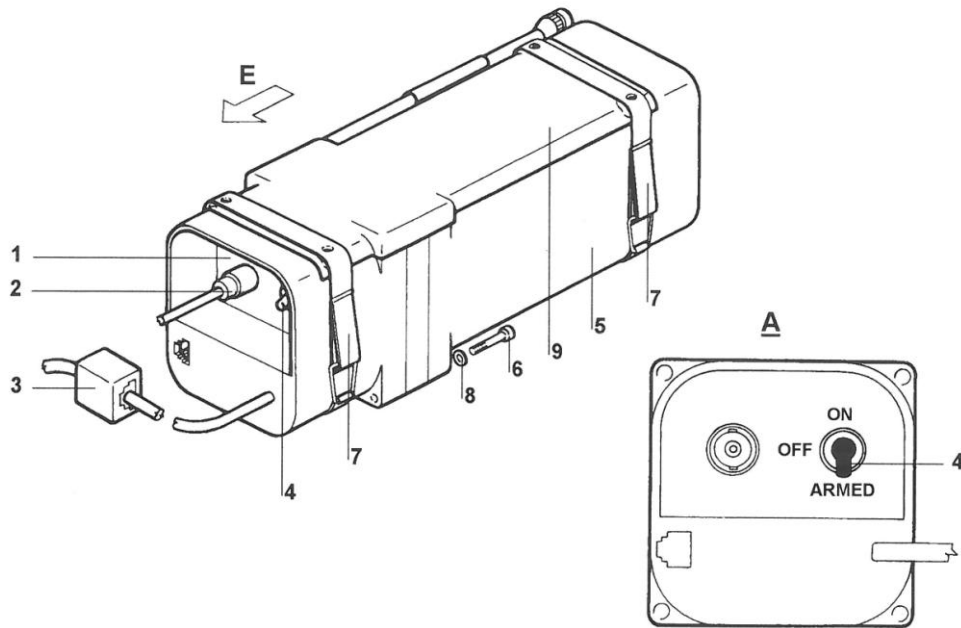
CHECK DURING BATTERY REPLACEMENT THE BATTERY POLARITY WITH RESPECT TO POSITION OF PIN (Fig. 23-2, item 4) UPON THE BATTERY CASING.

- a) Unscrew four screws (Fig 23-1, item 6) and disjoin the battery casing (5) from ELT control panel (1).
- b) Replace eight batteries (Fig 23-2, item 2) – Clean the contacts and preserve them.
- c) Check battery voltage and polarity be according to Fig. 23-2 (the voltage of four batteries should at least 6,2 V).
- d) Fit the battery casing (Fig. 23-1, item 5) to ELT control panel (1) and screw in screws (6) with washers (8).
- e) Write date of battery expiry upon the placard of the battery casing (5).

Replacement of batteries in ELT E - 01 remote control

- a) Unscrew two screws (Fig 23-3, item 13) and slide off the light annunciator panel (12).
- b) Turn left upper panel (11) round the screw (14) into the cockpit.
- c) Disconnect connector (5) of ELT remote control.
- d) Remove nuts (8) and washers (7) from four screws (6). Slide the ELT remote control from upper left panel (11).
- e) Unscrew three screws (4) and remove upper part (2) of ELT remote control from its bottom (3).
- f) Replace battery (1) after cleaning and preserving battery contacts. Maintain battery polarity (+, -) with respect to mating contacts.
- g) Fit upper part (2) of ELT remote control upon it bottom part (3) and screw the screws (4) in.
- h) Insert ELT remote control into the upper left panel (11). Provide screws (6) with washers (7) and screw nuts (8) in.
- i) Connect connector (5) to ELT remote control.
- j) Install upper left panel (11) and light annunciator panel (12) to its original position and screw the screws (13) in.

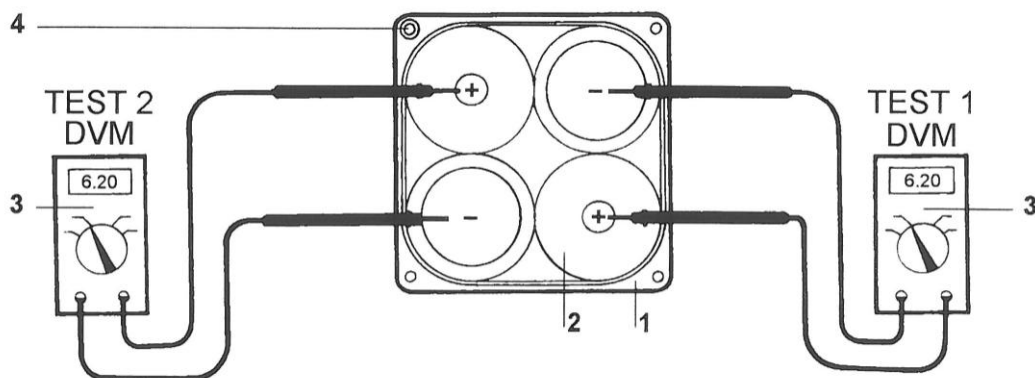
EFFECTIVITY: All



A ... fwd view of ELT control panel
E ... direction of flight

- | | |
|-----------------------------------|---------------------|
| 1 ... ELT control panel | 6 ... screw |
| 2 ... connector of board antenna | 7 ... fixing stripe |
| 3 ... connector of remote control | 8 ... washer |
| 4 ... switch | 9 ... console |
| 5 ... battery casing | |

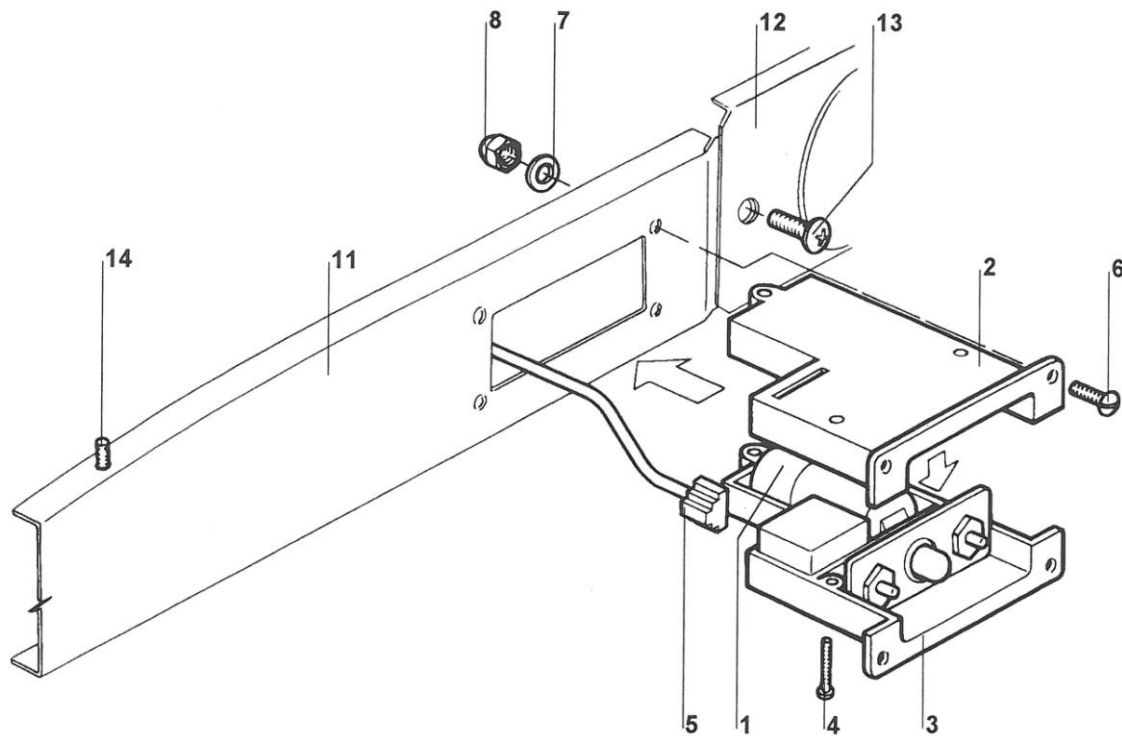
Fig. 23-1 ELT E - 01



- | | |
|-------------------------|--------------|
| 1 ... battery casing | 3 ... tester |
| 2 ... batteries (8 pcs) | 4 ... pin |

Fig. 23-2 ELT E - 01 battery check

EFFECTIVITY: All



- 1 ... battery
- 2 ... upper part of ELT remote control
- 3 ... bottom of ELT remote control
- 4 ... screw
- 5 ... connector of ELT remote control
- 6 ... screw
- 7 ... washer
- 8 ... nut

- For information only:
- 11 ... upper left panel
 - 12 ... light annunciator panel
 - 13 ... screw
 - 14 ... screw

Fig. 23-3 Battery of ELT E - 01 remote control

2. Removal of ELT POINTER 3000

- a) Turn ELT switch (Fig. 23-4, item 1) to **OFF** position.
- b) Disconnect connector (3) of board antenna and connector (2) of ELT remote control.
- c) Open fixing stripe (4) fixing ELT to console (5).
- d) Remove ELT from console (5) and from the airplane.

Replacement of ELT POINTER 3000 batteries

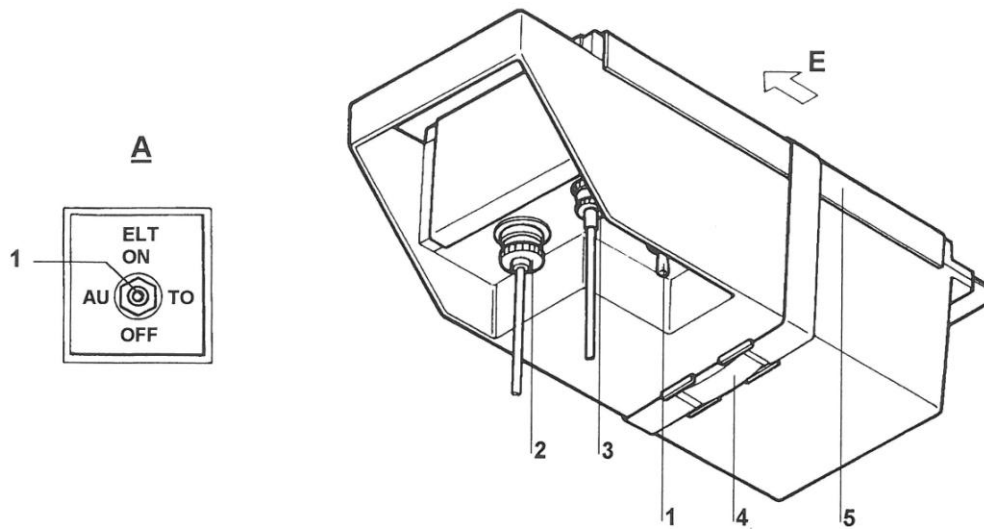
- a) Unscrew six screws (Fig. 23-5, item 6) of bottom lid (2) and remove lid and sealing (3) from ELT.
- b) Disconnect connector (5) and remove battery (4).
- c) Insert new battery (4) into the ELT body (1) and connect connector (5).
- d) Provide ELT body (1) with sealing (3) and bottom lid (2).
- e) Screw the screws (6) with neoprene washers (7) to ensure tightness of battery space (4).
- f) Write the date of battery expiry upon the ELT placard (1).

3. Removal of ELT ME-406

Instruction about removal of ELT ME-406 are described in Supplement No. 8a of Z 143 L - Z 143 LSi airplane Maintenance Manual.

Replacement of ELT ME-406 batteries

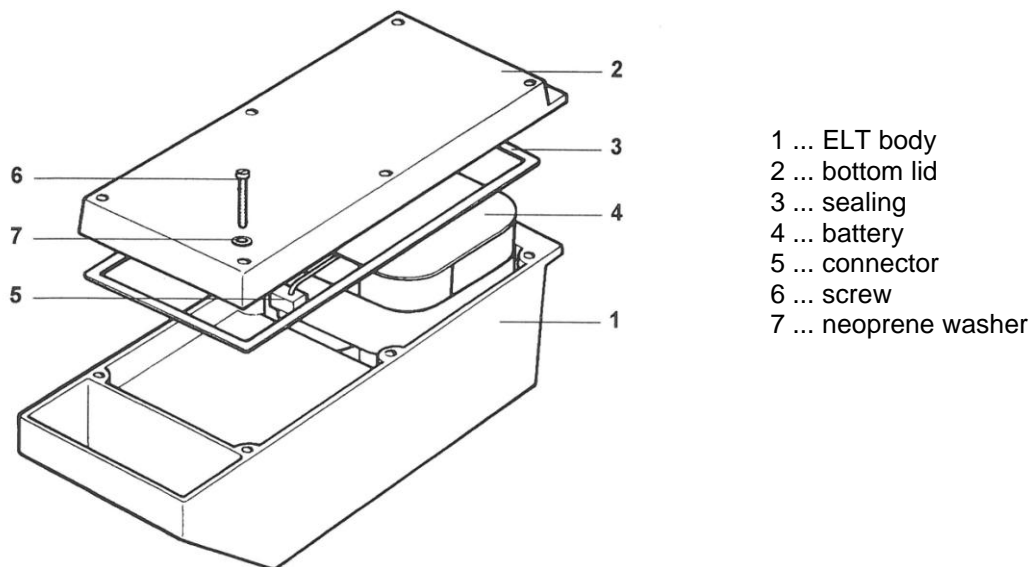
Instruction about batteries replacement of ELT ME-406 are described in Supplement No. 8a of Z 143 L - Z 143 LSi airplane Maintenance Manual.



A ... placard at switch
E ... direction of flight

1 ... switch
2 ... connector of remote switch
3 ... antenna connector
4 ... fixing stripe
5 ... console

Fig. 23-4 POINTER 3000 ELT



1 ... ELT body
2 ... bottom lid
3 ... sealing
4 ... battery
5 ... connector
6 ... screw
7 ... neoprene washer

Fig. 23-5 Battery of ELT POINTER 3000

EFFECTIVITY: All

INSTALLATION OF ELT

1. ELT E - 01 installation

- a) Fit the ELT to console (Fig. 23-1, item 9) and join it in place fixing stripe.
- b) Connect connectors of remote control (3) and ELT antenna (2).
- c) Check ELT serviceability.

2. ELT POINTER 3000 installation

- a) Fit to console (Fig. 23-4, item 5) and join it with fixing stripe.
- b) Connect connector of remote control (2) and ELT antenna connector (3).
- c) Check ELT serviceability.

3. ELT ME-406 installation

Instructions about ELT ME-406 installation are described in Supplement No. 8a of Z 143 L - Z 143 LSi airplane Maintenance Manual.

INSPECTION / CHECK

CHECK OF ELT

The issued ELT check procedure is of just general character and it should be adapted to pertinent instructions of ELT manufacturer valid for used ELT model.

Procedure:

CAUTION

THE ELT CHECK MAY BE CARRIED OUT DURING FIRST FIVE MINUTES AT THE BEGINNING OF DAILY HOURS.

THE ELT CHECK WITH ANTENNA CONNECTED SHOULD BE APPROVED AND ALLOWED BY AUTHORIZED ATC.

- a) Disconnect antenna connector from ELT.
- b) Turn **MASTER SWITCH** and **BATTERY** and **COMM/NAV 1** switches on.
- c) Turn communication transceiver on and tune it to 121,5 MHz.
- d) Turn ELT switch from **ARMED** to **ON** position for maximum 5 seconds. Check ELT signal transmission by communication receiver. Turn ELT switch back to **ARMED** position as soon as check is finished.
- e) Turn **COMM/NAV 1** and **BATTERY** and **MASTER SWITCH** off.
- f) Connect ELT antenna connector to ELT.
- g) Check battery date of expiry and replace batteries after one hour of operation or after a series of ELT serviceability checks.

NOTE

The date of expiry is issued upon the batteries and ELT placard.

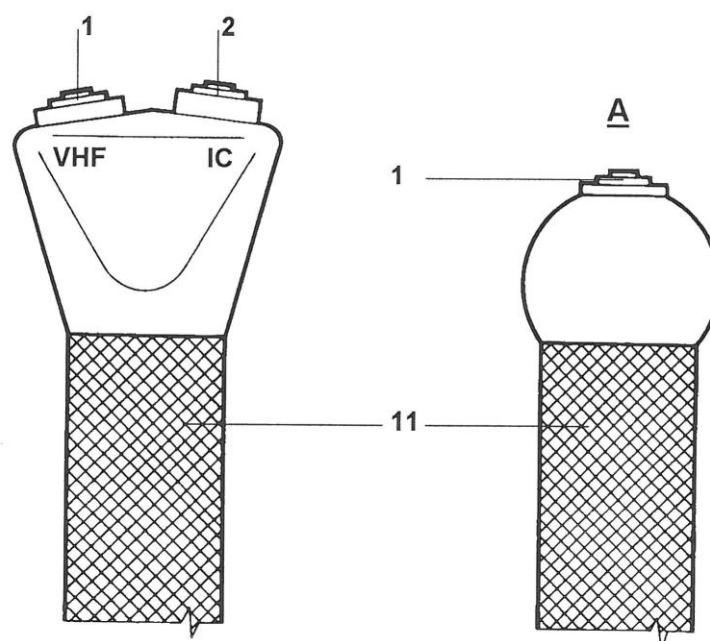
INTERCOM

DESCRIPTION AND OPERATION

Intercom system is used by crew and/or passengers for mutual communication.

Intercom is activated either manually by pushbutton or switch or automatically by voice.

The intercom control elements as switch and volume control are located upon middle instrument panel while the control push buttons are upon the tips of control sticks (Fig. 23-6) and upon the armrest of rear seats. The head set receptacles are upon the panel between fwd seats.



A ... control stick tips, if voice activated intercom is used

1 ... VHF pushbutton

2 ... intercom pushbutton

For information only:

11 ...L; R control stick tip

Fig. 23-6 Intercom pushbutton

AUDIO CONTROL CONSOLE

DESCRIPTION AND OPERATION

The audio control console enables connection of audio signal of navigation and communication systems to earphones or loudspeaker.

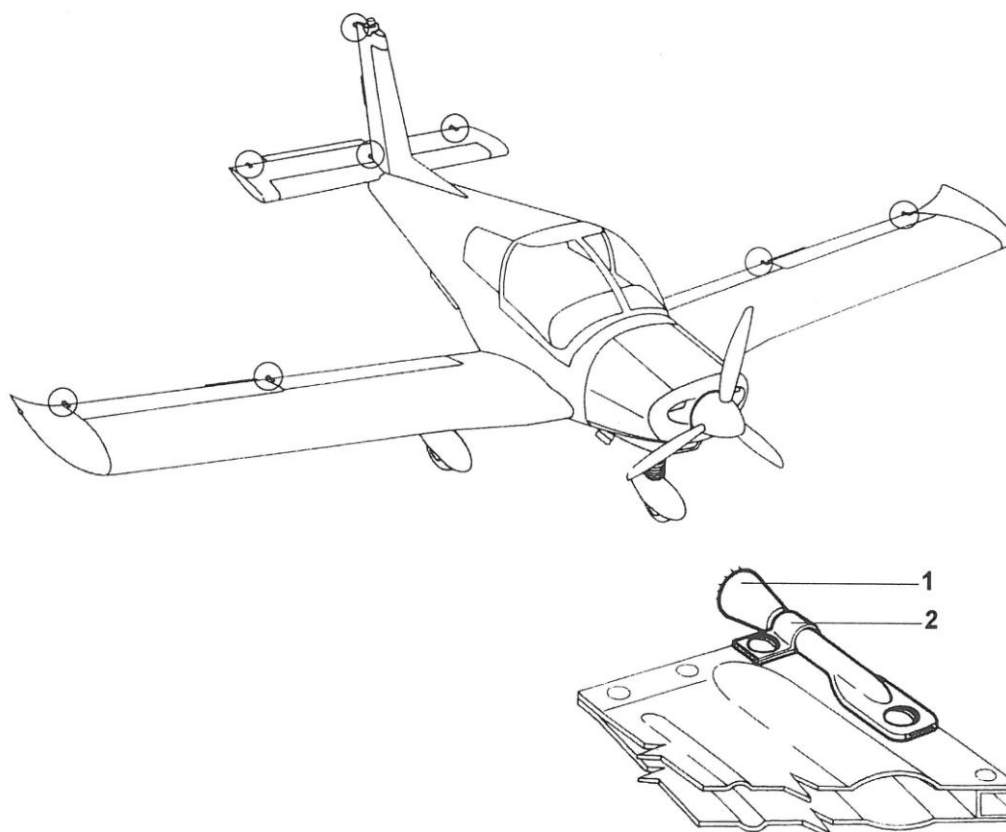
The audio control panel is designed to be installed to instrument panel.

The wiring diagram of audio control console (Circuit F) and its specification is issued in Chapter 95 (SUPPLEMENTS).

STATIC DISCHARGER

DESCRIPTION AND OPERATION

In order that the electric static charge may be dissipated the ailerons, wing flaps, elevator and rudder are provided with static discharger (Fig. 23-7, item 1).



- 1 ... static discharge
2 ... holder

Fig. 23-7 Static discharger

EFFECTIVITY: All

MAINTENANCE**APPROVED REPAIRS****REPAIR OF STATIC DISCHARGER**

Fault	Oprava
1) Faulty or excessively corroded static discharger.	Replace static discharger: - clean and polish contact surface to metal luster - install within one hour after surface polishing new static discharger and paint coupling with protection varnish.