23

COMMUNICATIONS

LIST OF EFFECTIVE PAGES

CHAPTER	PAGE	DATE
23-LEP (BA)	1	JUN 04
	2	JUN 04
23-TC (BA)	1	DEC 99
	2	JUN 04
	3	JUN 04
	4	JUN 04
	5	JUN 04
	6	JUN 04
23-00-00 (BA)	1	DEC 99
	2	DEC 99
23-10-00 (BA)	1	DEC 99
	2	DEC 99
23-10-00 (CA)	1	DEC 99
	2	DEC 99
23-10-00 (DA)	1	DEC 99
	2	DEC 99
23-10-00 (BA)	201	NOV 01
	202	DEC 99
23-10-00 (BA)	501	JUN 04
	502	JUN 04
	503	JUN 04
	504	JUN 04
	505	JUN 04
	506	JUN 04
	507	JUN 04
	508	JUN 04
23-11-00 (BE)	1	DEC 99
	2	DEC 99
23-11-00 (BI)	1	DEC 99
	2	DEC 99
	3	DEC 99
	4	DEC 99
	5	DEC 99
	6	DEC 99
23-11-00 (BM)	1	DEC 99
	2	DEC 99
	3	DEC 99
	4	DEC 99
	5	DEC 99
	6	DEC 99
23-11-00 (BQ)	1	DEC 99
	2	DEC 99
	3	DEC 99
	4	DEC 99
	5	DEC 99
	6	DEC 99
23-11-00 (CE)	1	DEC 99
	2	DEC 99
	3	DEC 99
	4	DEC 99
	5	DEC 99
	6	DEC 99
23-11-00 (DE)	1	JUN 04
	2	JUN 04
	3	NOV 01
	4	JUN 04
	5	NOV 01
	6	JUN 04
	7	JUN 04
	8	NOV 01
23-11-00 (DI)	1	JUN 04
	2	NOV 01
	3	NOV 01
	4	JUN 04
	5	JUN 04
	6	JUN 04
	7	JUN 04
	8	NOV 01
23-12-00 (BE)	1	NOV 01
	2	NOV 01

CHAPTER	PAGE	DATE
23-12-00 (BI)	1	NOV 01
	2	DEC 99
	3	DEC 99
	4	DEC 99
	5	DEC 99
	6	DEC 99
23-12-00 (BM)	1	NOV 01
	2	NOV 01
23-12-00 (CE)	1	NOV 01
	2	DEC 99
	3	NOV 01
	4	DEC 99
	5	NOV 01
	6	DEC 99
23-12-00 (CI)	1	NOV 01
	2	NOV 01
	3	NOV 01
	4	NOV 01
	5	NOV 01
	6	NOV 01
	7	NOV 01
	8	NOV 01
23-12-00 (CM)	1	NOV 01
	2	NOV 01
	3	NOV 01
	4	NOV 01
	5	NOV 01
	6	NOV 01
	7	NOV 01
	8	NOV 01
23-12-00 (CQ)	1	JUN 04
	2	JUN 04
	3	JUN 04
	4	JUN 04
	5	JUN 04
	6	JUN 04
	7	JUN 04
	8	JUN 04
	9	JUN 04
	10	JUN 04
23-12-02 (BA)	201	JUN 04
	202	JUN 04
	203	NOV 01
	204	NOV 01
23-12-06 (BA)	201	NOV 01
	202	NOV 01
	203	NOV 01
	204	NOV 01
23-13-00 (BE)	1	NOV 01
	2	NOV 01
	3	NOV 01
	4	NOV 01
	5	NOV 01
	6	NOV 01
	7	NOV 01
	8	NOV 01
23-13-00 (BM)	1	NOV 01
	2	NOV 01
	3	NOV 01
	4	NOV 01
	5	NOV 01
	6	NOV 01
23-13-00 (CA)	1	NOV 01
	2	NOV 01
	3	NOV 01
	4	NOV 01
	5	NOV 01
	6	NOV 01
23-13-02 (BA)	201	NOV 01
	202	NOV 01
	203	NOV 01
	204	NOV 01
23-13-02 (BE)	201	NOV 01
	202	NOV 01
23-60-00 (BA)	1	DEC 99
	2	DEC 99
	3	DEC 99
	4	DEC 99
23-60-00 (BA)	201	DEC 99
	202	DEC 99

TABLE OF CONTENTS

COMMUNICATIONS

DESCRIPTION AND OPERATION

1. GENERAL

The communication chapter describes the equipment allowing to communicate between two parts of the aircraft and another aircraft or ground stations. It also deals with the components used to discharge electrostatic electricity.

The communication system includes :

- the speech communication sub–system,
- the static dischargers.

2. DESCRIPTION

A. Speech communications – refer to 23–10–00

The speech communication sub–system includes :

- a low frequency communication sub–system,
- the systems which allow aircraft–to–ground or aircraft–to–aircraft transmissions and receptions.

B. Static dischargers – refer to 23–60–00

Static dischargers allow discharging into the atmosphere the electrostatic charges stored on the aircraft.

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SPEECH COMMUNICATIONS

DESCRIPTION AND OPERATION

1. GENERAL

The speech communication system allows establishing air–to–ground or air–to–air liaisons. A low frequency communication system makes it possible to operate the radiocommunication means.

The speech communication system includes :

- the VHF capability,
- the COM 1 installation,
- the COM 2 installation,
- the COM 3 installation.

2. DESCRIPTION

A. VHF capability – refer to 23–11–00

The VHF capability system ensures :

- the interphone function between the pilot and the passenger R.H. front station and rear passengers,
- the amplification of communication and navigation audio signals applied to the cabin headsets and loudspeaker,
- the operation of the radiocommunication means.

B. COM 1 installation – refer to 23–12–00

This is the first VHF installation which uses voice–modulated electromagnetic waves to transmit and / or receive air–to–air or air–to–ground messages.

C. COM 2 installation – refer to 23–13–00

This is the second VHF installation which uses voice–modulated electromagnetic waves to transmit and / or receive air–to–air or air–to–ground messages.

D. COM 3 installation – refer to 23–14–00

This is the UHF installation which uses voice–modulated electromagnetic waves to transmit and / or receive air–to–air or air–to–ground messages.

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SPEECH COMMUNICATIONS

DESCRIPTION AND OPERATION

1. GENERAL

The speech communication system allows establishing air–to–ground or air–to–air liaisons. A low frequency communication system makes it possible to operate the radiocommunication means.

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A. VHF capability – refer to 23–11–00

The VHF capability system ensures :

- the interphone function between the pilot and the passenger R.H. front station and rear passengers,
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- the operation of the radiocommunication means.

B. COM 1 installation – refer to 23–12–00

This is the first VHF installation which uses voice–modulated electromagnetic waves to transmit and / or receive air–to–air or air–to–ground messages.

C. COM 2 installation – refer to 23–13–00

This is the second VHF installation which uses voice–modulated electromagnetic waves to transmit and / or receive air–to–air or air–to–ground messages.

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SPEECH COMMUNICATIONS

DESCRIPTION AND OPERATION

1. GENERAL

The speech communication system makes it possible to establish air–to–ground or air–to–air liaisons. A low frequency communication system is used to operate the radiocommunication means.

The speech communication system includes :

- the VHF capability,
- the COM 1 installation,
- the COM 2 capability.

2. DESCRIPTION

A. VHF capability – refer to 23–11–00

The VHF capability system ensures :

- the interphone function between the pilot and the passenger R.H. front station and rear passengers,
- the amplification of communication and navigation audio signals applied to the cabin headsets and loudspeaker,
- the operation of the radiocommunication means.

B. COM 1 installation – refer to 23–12–00

This is the first VHF installation which uses voice–modulated electromagnetic waves to transmit and / or receive air–to–air or air–to–ground messages.

C. COM 2 capability

As regards the second VHF installation, the aircraft is pre–equipped with a VHF 2 antenna and its coaxial cable.

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SPEECH COMMUNICATIONS

MAINTENANCE PRACTICES

1. SERVICING

For information on electronic equipment, refer to the corresponding manufacturer's manual.

NOTE : For "RADIO MASTER" switch, refer to chapter 24-50-00.

2. REMOVAL / INSTALLATION - SPEECH COMMUNICATION EQUIPMENT (Figure 201)

NOTE : This procedure applies to most of speech communication equipment installed in the radio rack.

A. Tools and consumable materials

- Allen wrench 3/32 in

B. Typical removal procedure of a speech communication equipment

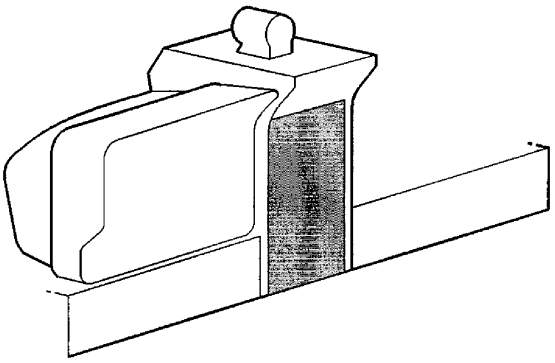
1) Make sure the switch-breaker of the main switch is open.
2) Insert a 3/32-in Allen wrench into orifice (2) located on the front face of the speech communication equipment.

   NOTE : The location of orifice (2) on the front face varies according to the equipment type.

3) Fully unscrew the locking system. Do not force.
4) Extract speech communication equipment (1) by pulling it from the sides (Do not pull the equipment from the control knobs).

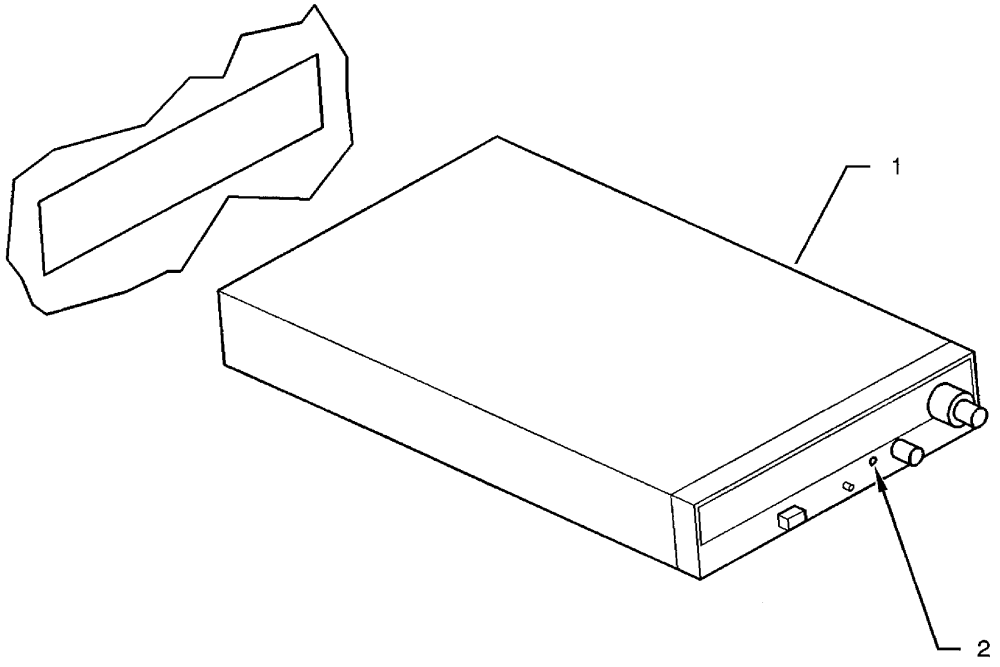
C. Typical installation procedure of a speech communication equipment

1) Make sure the switch-breaker of the main switch is open.
2) Check the condition of the pins of the connector secured at the bottom of the rack.
3) Insert speech communication equipment (1) into its rack.
4) Apply a light axial pressure to engage the equipment connector into the rack's connector.
5) Screw the locking system with a 3/32-in Allen wrench.
6) Make sure the speech communication equipment is correctly secured in its rack (correct locking).
7) Make sure all the tools and materials are removed and the work area is clean and free from debris.
8) Perform an operational test of the system.



1 - Speech communication equipment
2 - Orifice

Variante de localisation
Alternate location



I4231000AABDVZ4000

Speech communication equipment - Removal / Installation
Figure 201

SPEECH COMMUNICATIONS

ADJUSTMENT / TEST

NOTE : This procedure is applicable to COM 1 and COM 2 installations. Information specific to COM 2 installation are given in square brackets.

1. OPERATIONAL TEST OF COM 1 [COM 2] INSTALLATION (Figures 501, 501A and 501B)

A. Tools and consumable materials

- Ground power unit

B. Procedure

1) Make sure that the main switch-breaker is open.

2) If aicraft is fitted with a ground power receptacle, connect the ground power unit.

3) Connect a headset to pilot's jacks (1).

4) Close main switch-breaker.

5) Perform the interphone function test :

ACTION	RESULT
(1) Set "RADIO MASTER" switch to ON. Make sure the buttons used to turn on PL30 radio rack equipment items are set to ON.	(a) All PL30 radio rack equipment items are on.
KMA 24H or PMA 7000MS audio control panel	
(2) Use headset. Modulate mike and alternately rotate the intercom volume control knob (2) of A50 audio control panel (5) clockwise and counterclockwise.	(a) The audio level in the headset varies according to the position of the volume control knob.
(3) Connect the headset to the R.H. station jacks (1).	
(4) Use headset. Modulate mike and alternately rotate the intercom volume control knob (2) of A50 audio control panel (5) clockwise and counterclockwise.	(a) The audio level in the headset varies according to the position of the volume control knob.

AAAA
Validity : With A50 audio control panel

ACTION	RESULT
GMA 340 audio control panel	
(2) Use headset. Modulate mike and alternately rotate the intercom volume control knob (2) of A50 audio control panel (5) clockwise and counterclockwise. **NOTE : Previously, fully rotate "SQ" button (8) counterclockwise.**	(a) The audio level in the headset varies according to the position of the volume control knob.
(3) Connect the headset to the R.H. station jacks (1).	
(4) Use headset. Modulate mike and alternately rotate the intercom volume control knob (10) of A50 audio control panel (5) clockwise and counterclockwise. **NOTE : Previously, fully rotate "SQ" button (9) counterclockwise.**	(a) The audio level in the headset varies according to the position of the volume control knob.

6) Perform COM 1 [COM 2] installation test :

ACTION	RESULT
KMA 24H audio control panel	
(1) On A50 audio control panel (5) depress speaker audio selector button (3) "COM 1" ["COM 2"]	
(2) On A50 audio control panel, set function selector (4) to "COM 1" ["COM 2"].	
GMA 340 audio control panel	
(1) On A50 audio control panel (5), if required, momentarily depress speaker audio selector button (3) "SPKR".	(a) The LED indicator light corresponding to the button comes on to confirm the selection.
(2) On A50 audio control panel (5), if required, momentarily depress "COM1/MIC" button (7) ["COM2/MIC"].	(a) The LED indicator light corresponding to the button comes on to confirm the selection.

AAAA
Validity : With A50 audio control panel

ACTION	RESULT
PMA 7000MS audio control panel	
(1) On A50 audio control panel (5), depress speaker audio selector button (3) "SPKR".	(a) The LED indicator light corresponding to the button comes on to confirm the selection.
(2) On A50 audio control panel, set function selector (4) to "COM 1" ["COM 2"].	
All	
(3) On transceiver, de-activate squelch function. If necessary, rotate volume knob to adjust audio level.	(a) Presence of a hissing sound in the loudspeaker (transceiver is operating unsquelched).
(4) On transceiver activate squelch function.	(a) No more hissing sound in the loudspeaker (transceiver is operating squelched).
(5) On transceiver, select an active sequence **NOTE : Choose a frequency to avoid disturbing neighbouring ground stations.**	
(6) Depress pilot's control wheel push-to-talk switch	Transceiver equipped with a transmission indicator (a) On transceiver, the transmission indicator appears to indicate the equipment is in the transmission mode.
(7) Release pilot's control wheel push-to-talk switch	Transceiver equipped with a transmission indicator (a) On transceiver, the transmission indicator disappears.
(8) On A50 audio control panel (5), de-activate loudspeaker function.	

7) If necessary, connect headset equipment to pilot's or R.H. front station jacks (1).

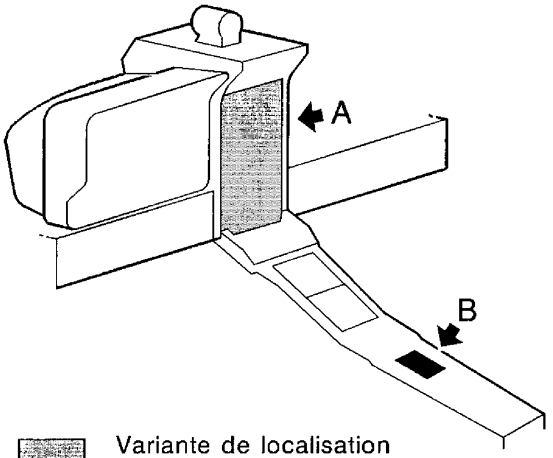
8) On COM 1 [COM 2] transceiver, select the frequency of the chosen VHF ground station. Contact the station to check transceiver operation in both transmission and reception modes.

NOTE : On A50 audio control panel, select headset listening and push-to-talk switch/mike function associated to COM 1 [COM 2] installation transceiver.

9) Set "RADIO MASTER" switch to "OFF".

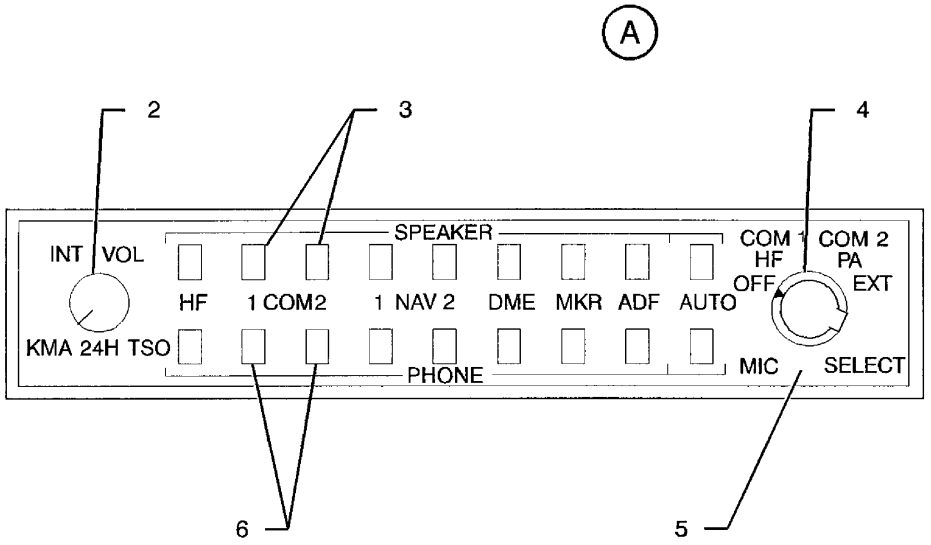
10) Open main switch-breaker.

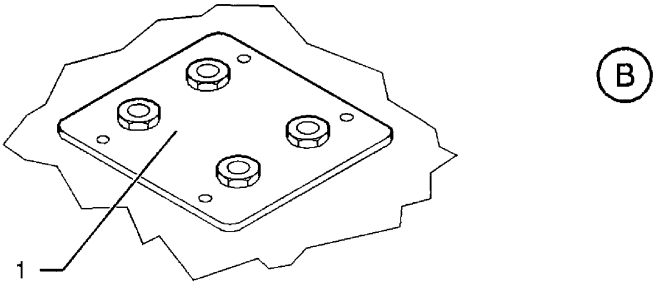
11) If connected, disconnect the ground power unit - refer to 24-40-00.



Variante de localisation
Alternate location

1 - Jacks
2 - Intercom volume control knob
3 - Speaker audio selector buttons
4 - Function selector
5 - A50 audio control panel
6 - Headset listening selector knobs

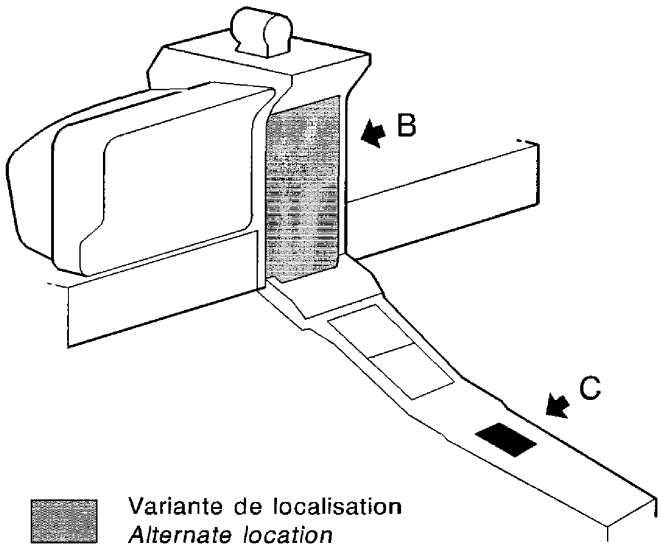




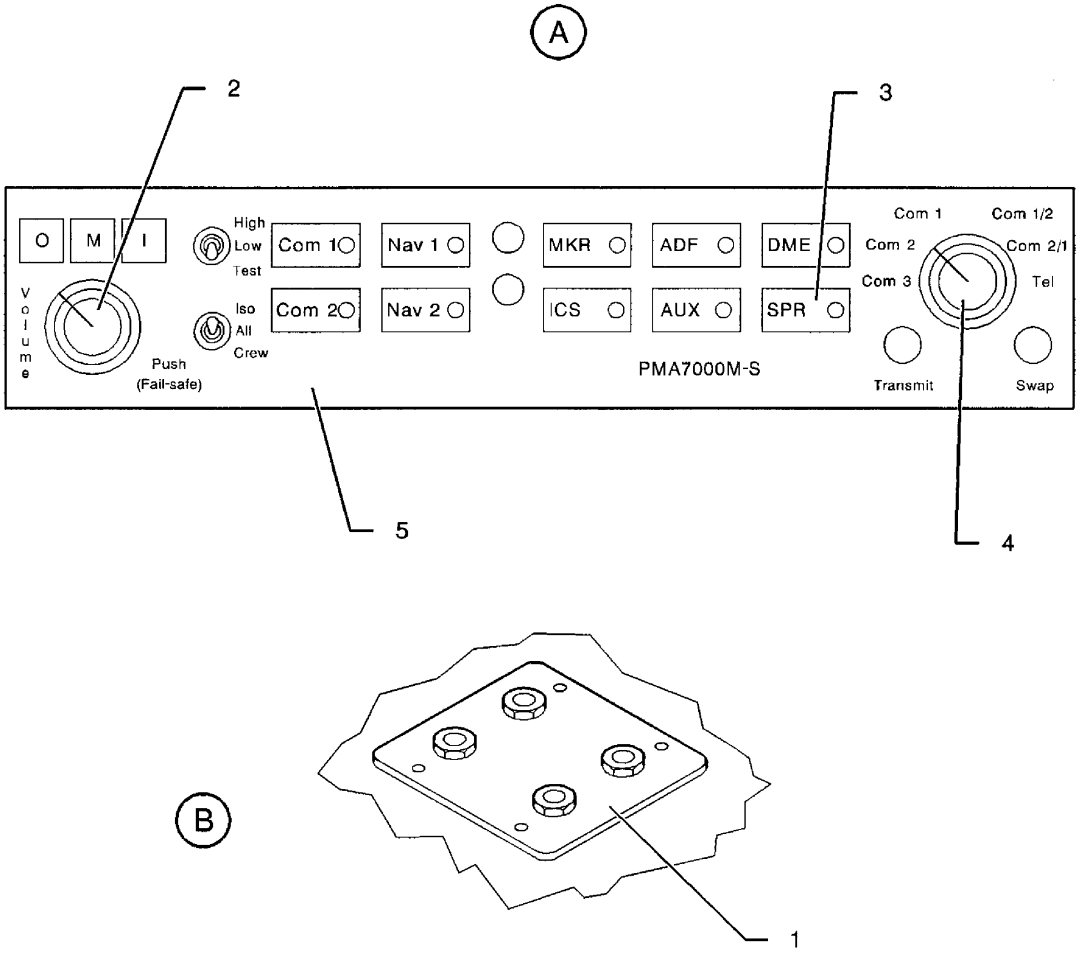
I4231100AAVVZ14000

Speech communications – Adjustment / test
Figure 501 - KMA 24H

AAAA
Validity : With A50 audio control panel



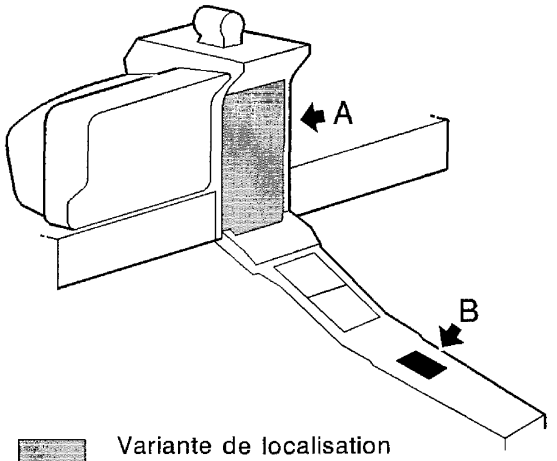
1 - Jacks
2 - Intercom volume control knob
3 - Speaker audio selector buttons
4 - Function selector
5 - A50 audio control panel



I4231100AAAUVZ14100

Speech communications – Adjustment / test
Figure 501A - PMA 7000MS

AAAA
Validity : With A50 audio control panel



Variante de localisation
Alternate location

1 - Jacks

2 - Pilot's intercom volume control knob

3 - Speaker audio selector buttons

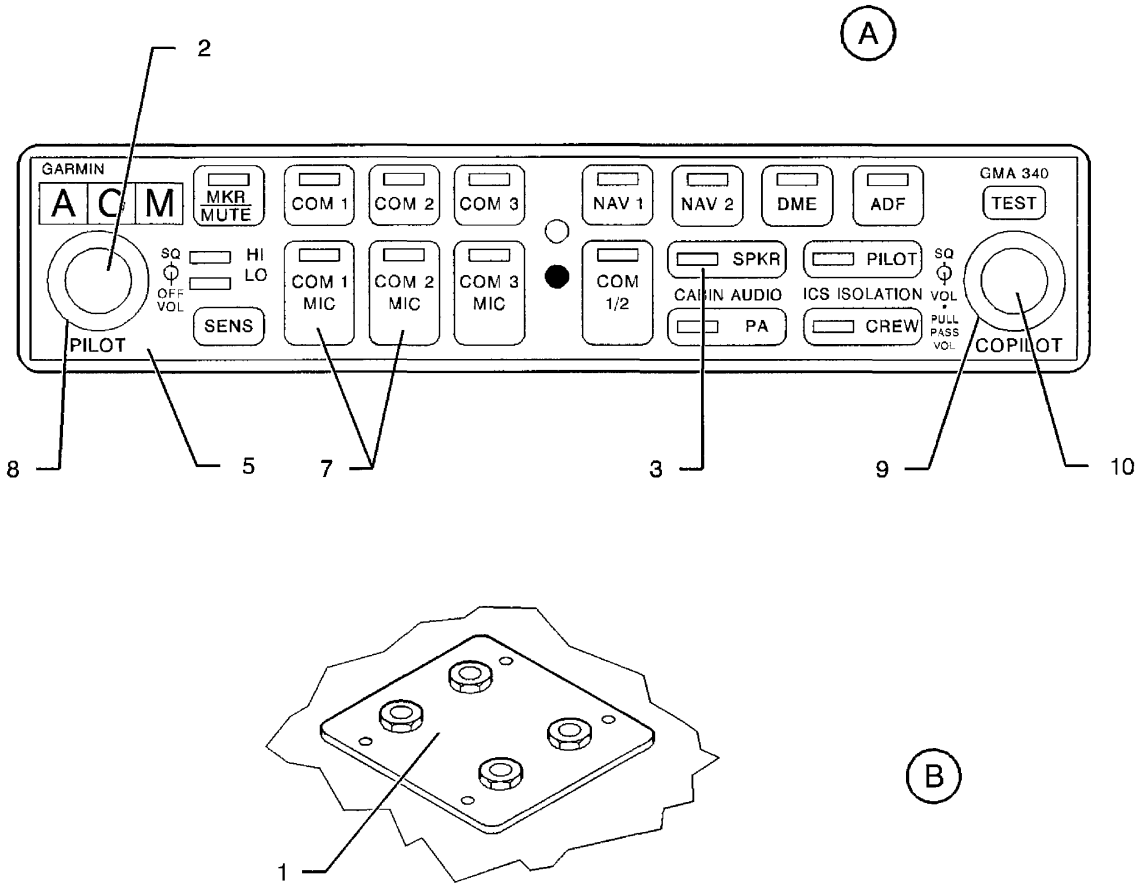
5 - A50 audio control panel

7 - "COM 1 MIC" and "COM 2 MIC" buttons

8 - Pilot's seat "SQ" (Squelch) button

9 - R.H. front seat "SQ" (Squelch) button

10 -R.H. front seat intercom volume control knob



I4231100AAAVVZ4200

Speech communications – Adjustment / test
Figure 501B – GMA 340

AAAA
Validity : With A50 audio control panel

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VHF CAPABILITY

DESCRIPTION AND OPERATION

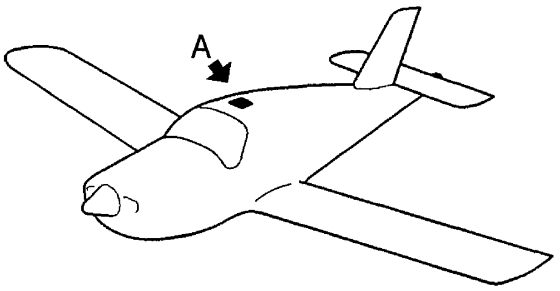
1. GENERAL

The standard VHF capability system is composed of :

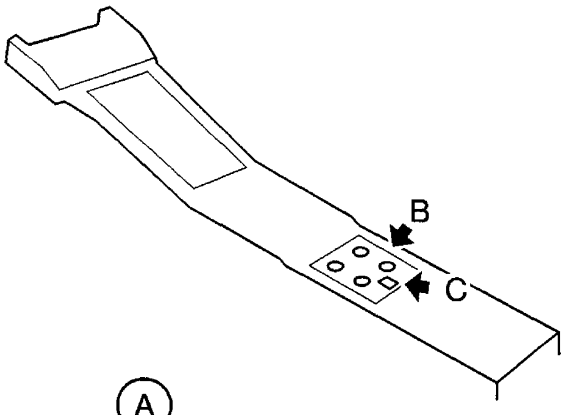
- a cabin loudspeaker,
- connecting jacks,
- push–to–talk switches on R.H. and L.H. control wheels,
- a hand–held microphone.

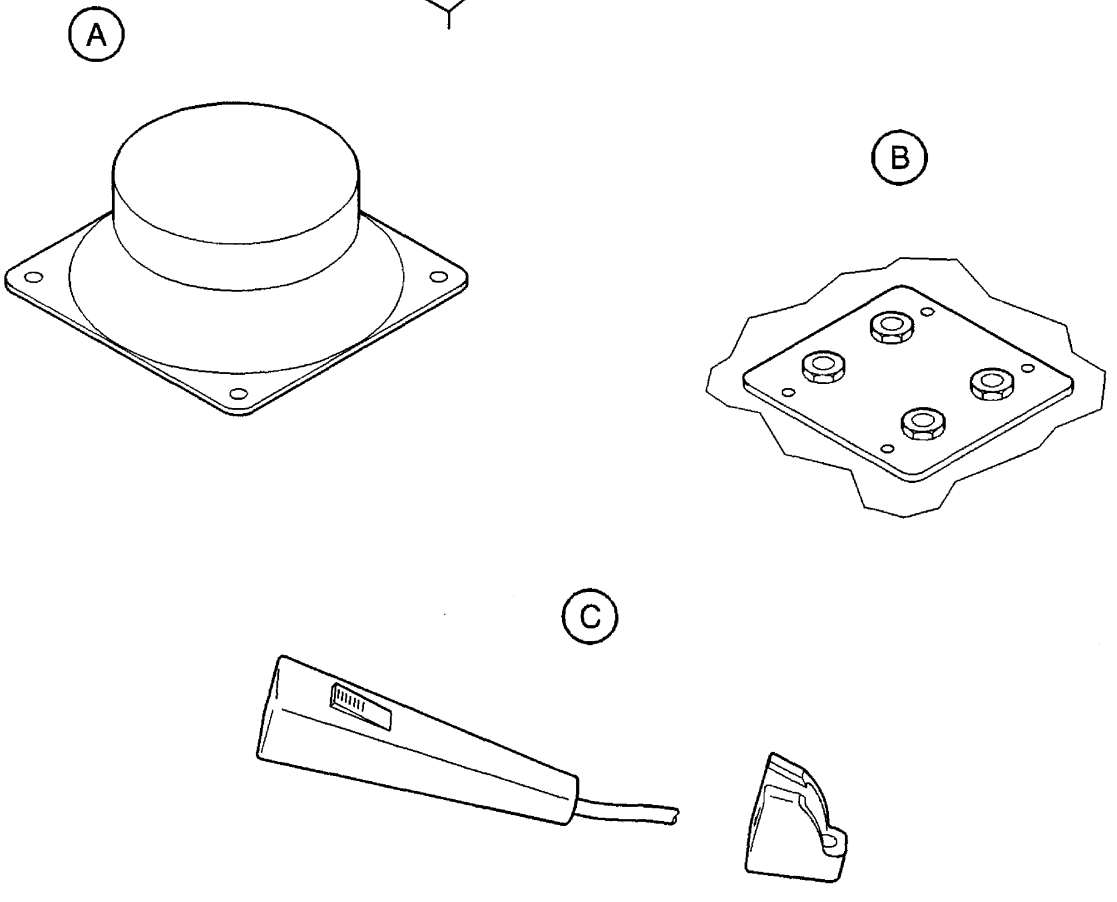
2. LOCATION (Figure 1)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Cabin loudspeaker	1	240	/	/
Pilot connection jacks	/	236	/	/
R.H. front station connection jacks	/	236	/	/
Hand–held microphone	1	236	/	/



A – Cabin loudspeaker
B – Pilot and R.H. front station connection jacks
C – Hand–held microphone





I4231000AABBVZ4000

VHF capability – Identification and location of components
Figure 1

VHF CAPABILITY

DESCRIPTION AND OPERATION

1. GENERAL (Figure 1)

The optional VHF capability system allows operating the radiocommunication means (VHF) as well as the radionavigation messages (VOR, DME, ADF and MKR).

The system consists of :

- an A50 audio control box,
- a cabin loudspeaker,
- connecting jacks,
- push–to–talk switches on R.H. and L.H. control wheels,
- a hand–held microphone.

The system receives audio signals from :

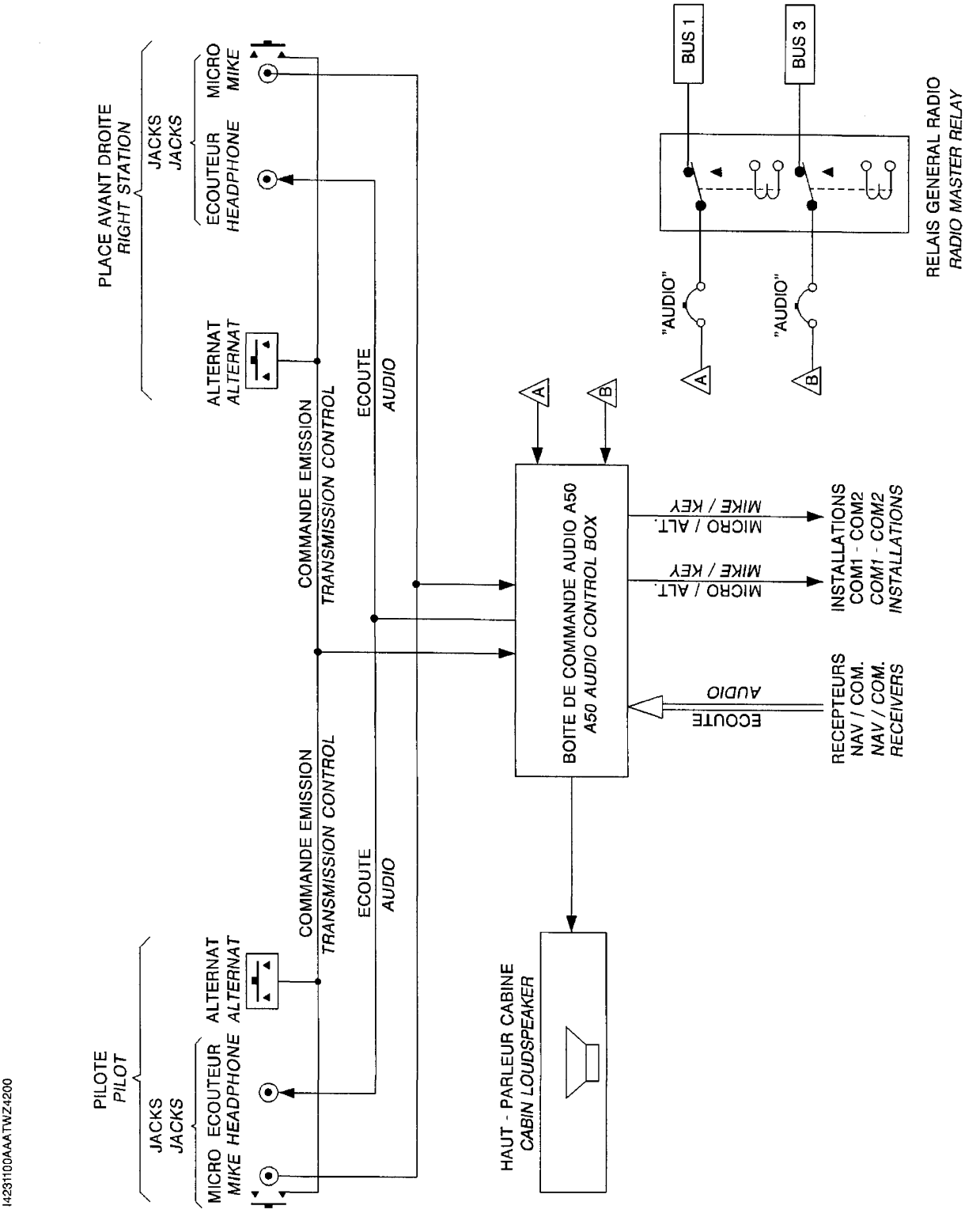
- COM 1 installation (if installed) – refer to 23–12–00,
- COM 2 installation (if installed) – refer to 23–13–00,
- COM 3 installation (if installed) – refer to 23–14–00,
- the Marker system (if installed) – refer to 34–31–00,
- the NAV 1 installation (if installed) – refer to 34–51–00,
- the NAV 2 installation (if installed) – refer to 34–52–00,
- the automatic direction finder system (if installed) – refer to 34–54–00,
- the DME installation (if installed) – refer to 34–55–00.

The system receives unmuted audio signals or warning tones from :

- the global positioning system (GPS) (if installed) – refer to 34–57–00,
- the altitude / vertical speed selector (if installed) – refer to 22–12–00,
- the aural warning unit (landing gear–stall) only for aircraft equipped with retractable landing gear – refer to 31–50–00.

The A50 audio control box includes also a marker beacon receiver – refer to 34–31–00.

The A50 audio control box is electrically supplied by "BUS 1" and "BUS 3" bars.



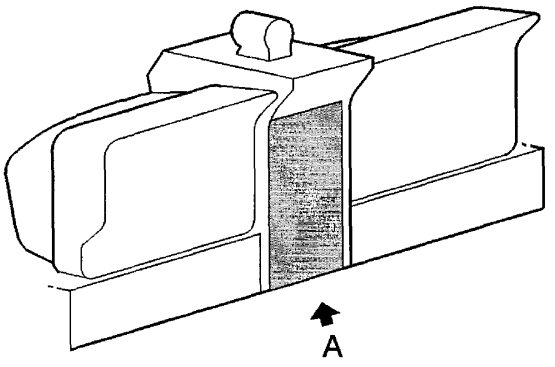
VHF capability – Electrical schematic
Figure 1

2. LOCATION (Figures 2 and 3)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A50 audio control box	1	251C	/	23–10–00
Cabin loudspeaker	1	240	/	23–11–00
Pilot connection jacks	/	236	/	23–11–00
R.H. front station connection jacks	/	236	/	23–11–00
Hand–held microphone	1	236	/	23–11–00
Circuit breaker : – "Audio"	2	230	232L	WM

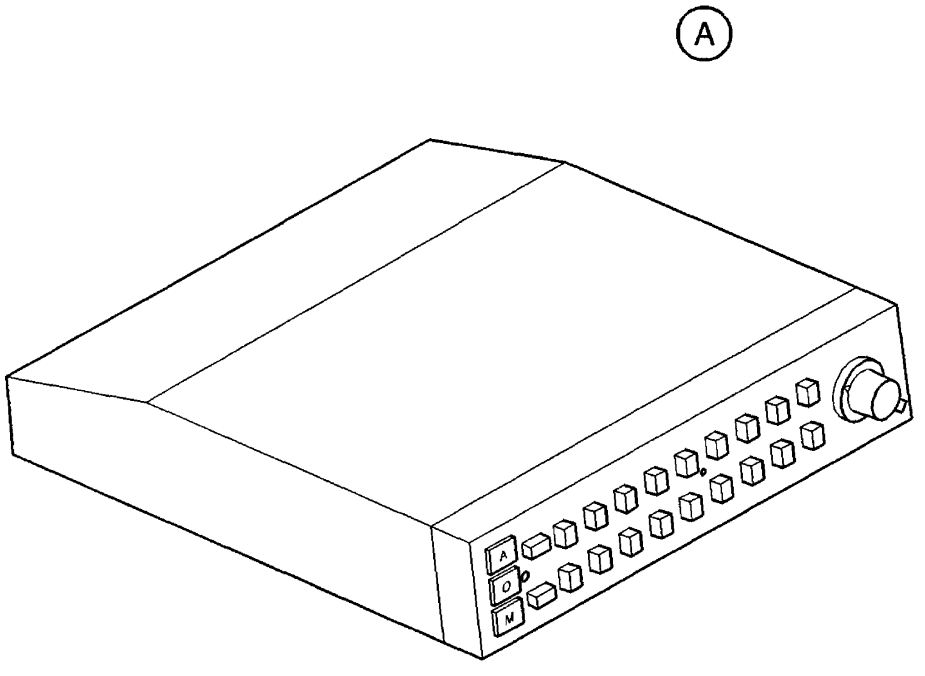
3. OPERATION

NOTE : For equipment operation and maintenance, refer to the supplier's Maintenance Manual.



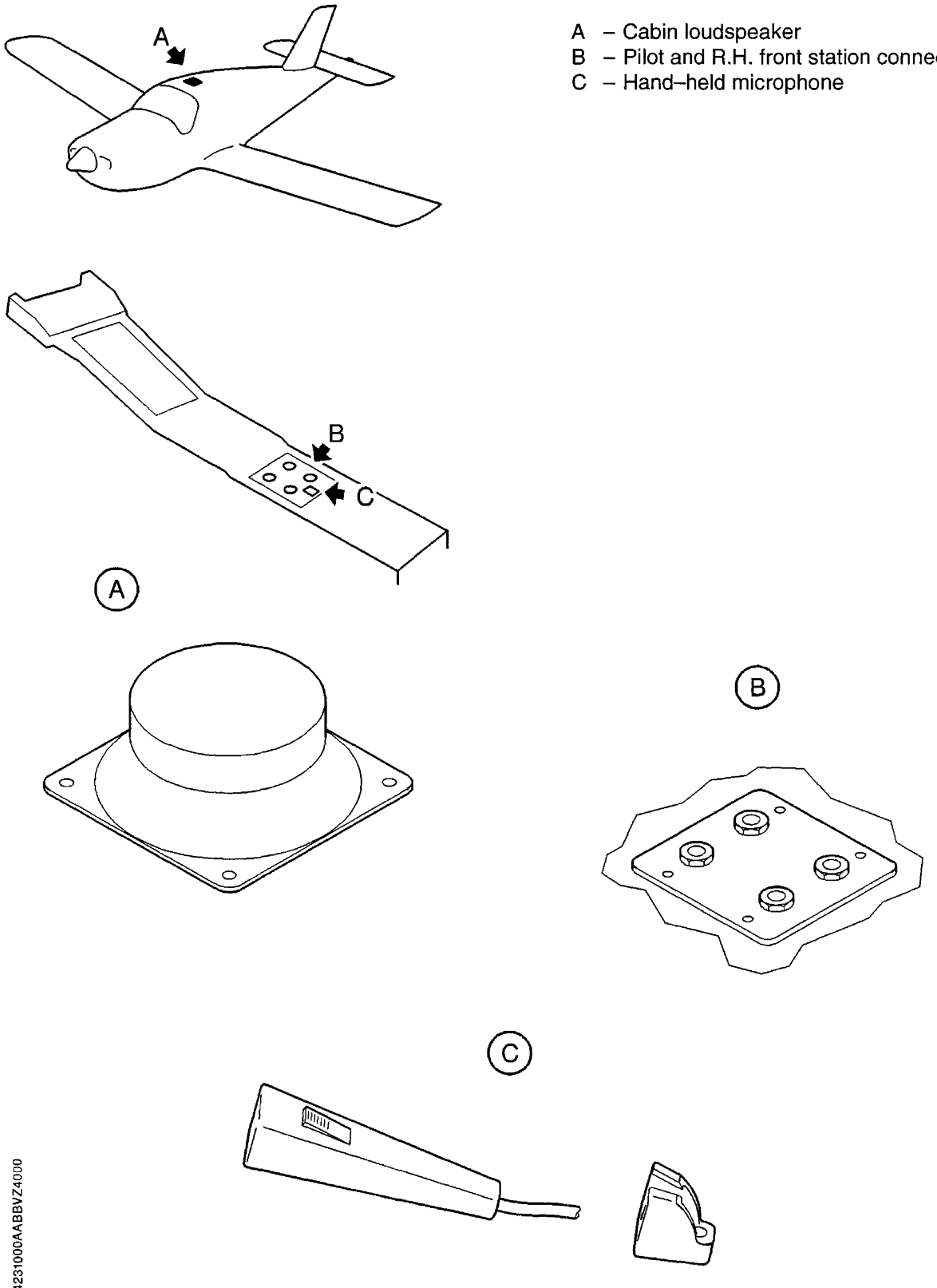
A – A50 audio control box

Variante de localisation
Alternate location



I4343100AAABWZ4200

VHF capability – Identification and location of components
Figure 2



A – Cabin loudspeaker
B – Pilot and R.H. front station connection jacks
C – Hand–held microphone

VHF capability – Identification and location of components
Figure 3

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VHF CAPABILITY

DESCRIPTION AND OPERATION

1. GENERAL (Figure 1)

The optional VHF capability system allows operating the radiocommunication means (VHF) as well as the radionavigation messages (VOR, DME, ADF and MKR).

The VHF capability system also ensures the interphone function and allows receiving warning information.

The system consists of :

- an A50 audio control box,
- an A136 interphone,
- a cabin loudspeaker,
- connecting jacks,
- push–to–talk switches on R.H. and L.H. control wheels,
- a hand–held microphone.

The A50 audio control box includes also a marker beacon receiver – refer to 34–31–00.

The system receives audio signals from :

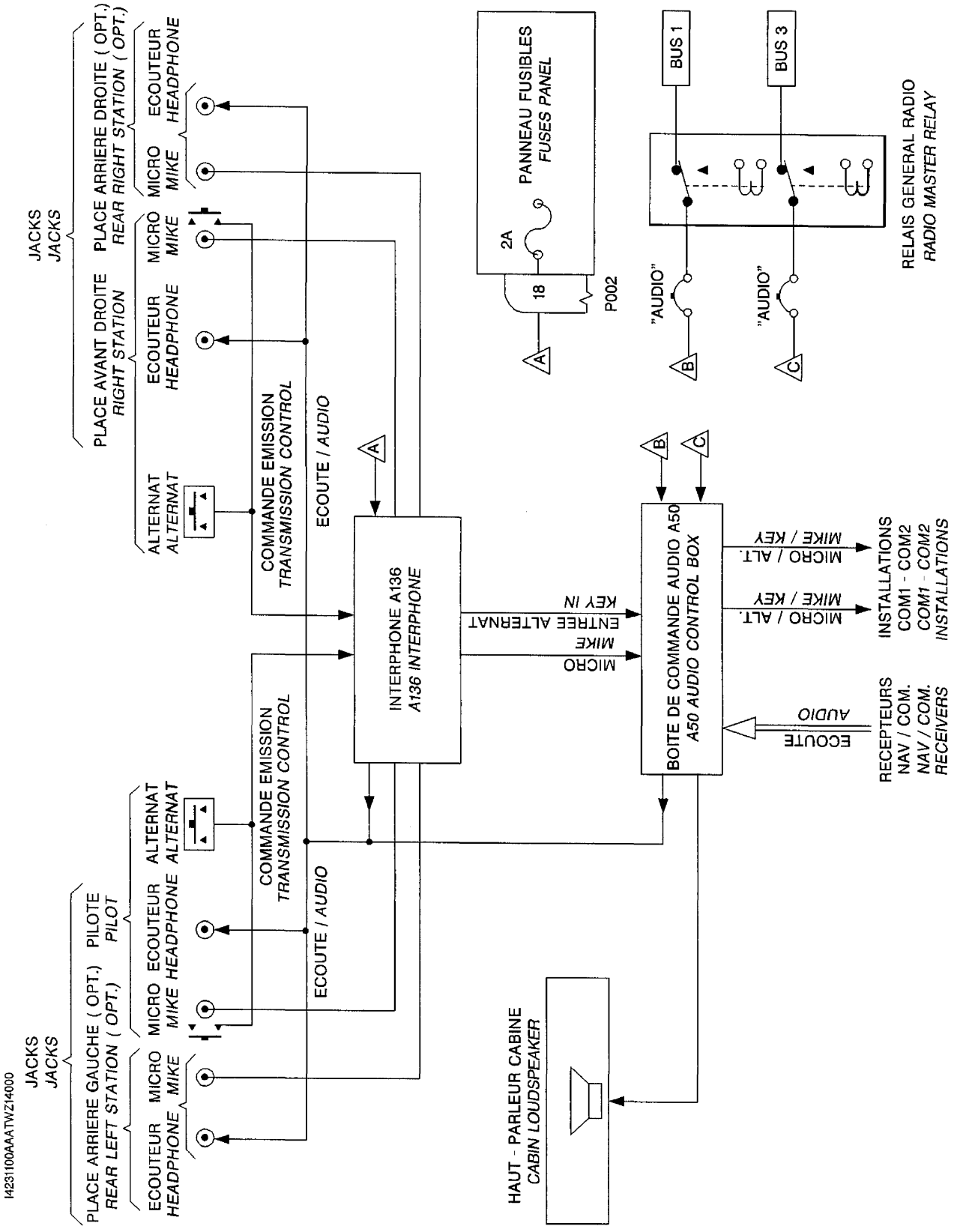
- COM 1 installation (if installed) – refer to 23–12–00,
- COM 2 installation (if installed) – refer to 23–13–00,
- the Marker system (if installed) – refer to 34–31–00,
- the NAV 1 installation (if installed) – refer to 34–51–00,
- the NAV 2 installation (if installed) – refer to 34–52–00,
- the automatic direction finder system (if installed) – refer to 34–54–00,
- the DME installation (if installed) – refer to 34–55–00.

The system receives unmuted audio signals or warning tones from :

- the global positioning system (GPS) (if installed) – refer to 34–57–00,
- the altitude / vertical speed selector (if installed) – refer to 22–12–00,
- the aural warning unit (landing gear–stall) only for aircraft equipped with retractable landing gear – refer to 31–50–00.

The A50 audio control box is electrically supplied by "BUS 1" and "BUS 3" bars.

The A136 interphone is electrically supplied by "BUS 2" bar.



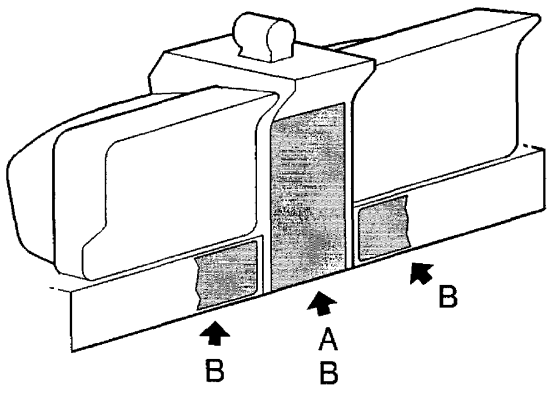
VHF capability – Electrical schematic
Figure 1

2. LOCATION (Figures 2 and 3)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A50 audio control box	1	251C	/	23–10–00
A136 interphone	1	251C	/	23–11–00
Cabin loudspeaker	1	240	/	23–11–00
Pilot connection jacks	/	236	/	23–11–00
R.H. front station connection jacks	/	236	/	23–11–00
Rear passenger connection jacks (option)	/	236	/	23–11–00
Hand–held microphone	1	236	/	23–11–00
Circuit breaker : – "Audio"	2	230	232L	WM
Fuse : – "INTERCOM"	1	250	211L	WM

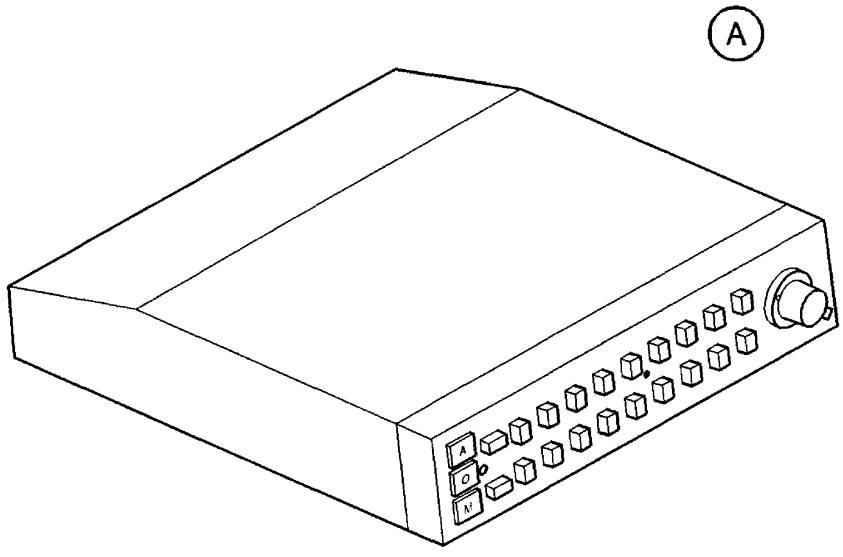
3. OPERATION

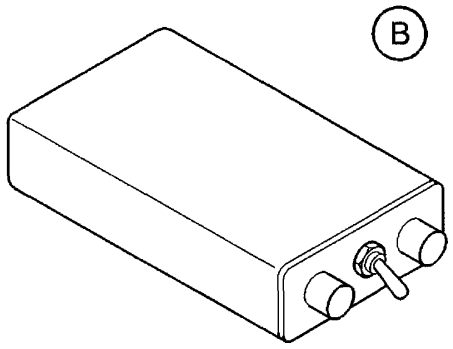
NOTE : For equipment operation and maintenance, refer to the supplier's Maintenance Manual.



A – A50 audio control box
B – A136 interphone

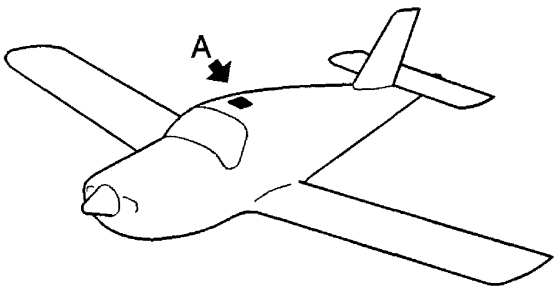
Variante de localisation
Alternate location



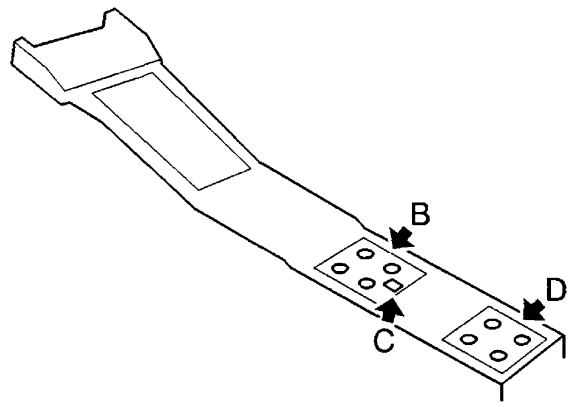


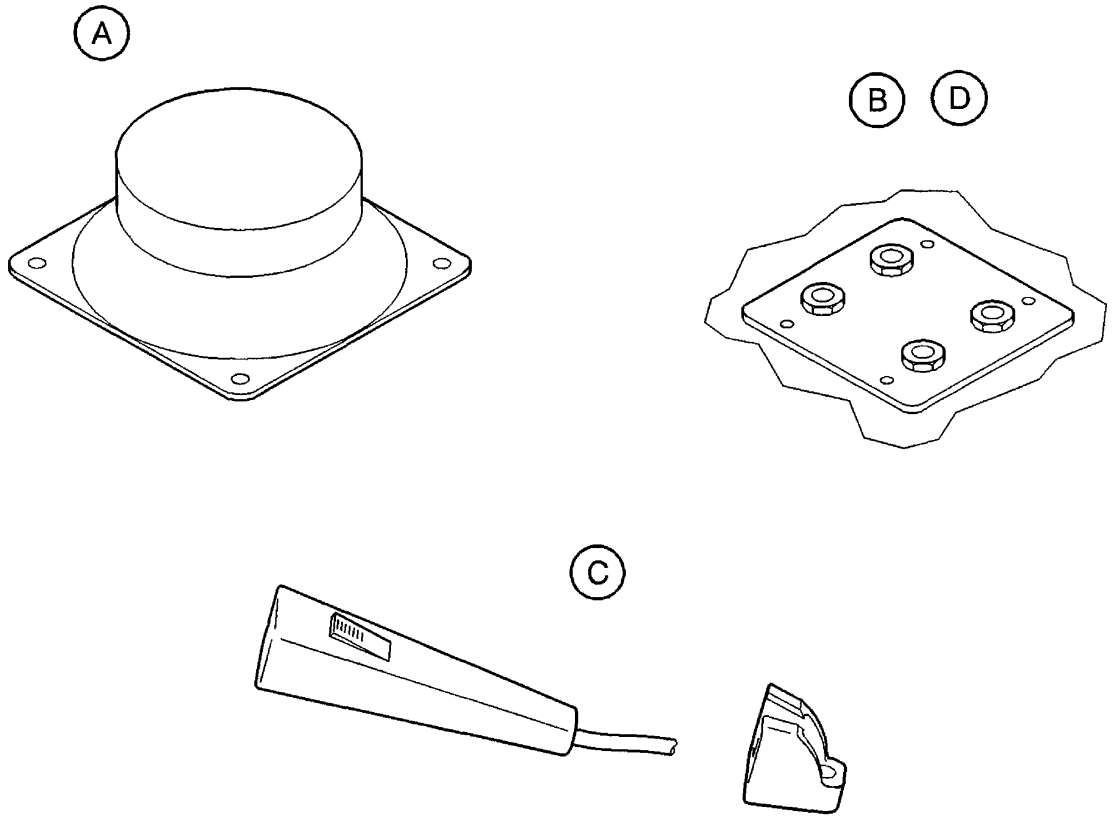
I4343100AAABWZ14000

VHF capability – Identification and location of components
Figure 2



A – Cabin loudspeaker
B – Pilot and R.H. front station connection jacks
C – Hand–held microphone
D – Rear passenger connection jacks (Option)





I4231000AABBVZ4200

VHF capability – Identification and location of components
Figure 3

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VHF CAPABILITY

DESCRIPTION AND OPERATION

1. GENERAL (Figure 1)

The optional VHF capability system allows operating the radiocommunication means (VHF) as well as the radionavigation messages (VOR, DME, ADF and MKR).

The VHF capability system also ensures the interphone function and allows receiving warning information.

The system consists of :

- an A50 audio control box,
- a cabin loudspeaker,
- connecting jacks,
- push–to–talk switches on R.H. and L.H. control wheels,
- a hand–held microphone.

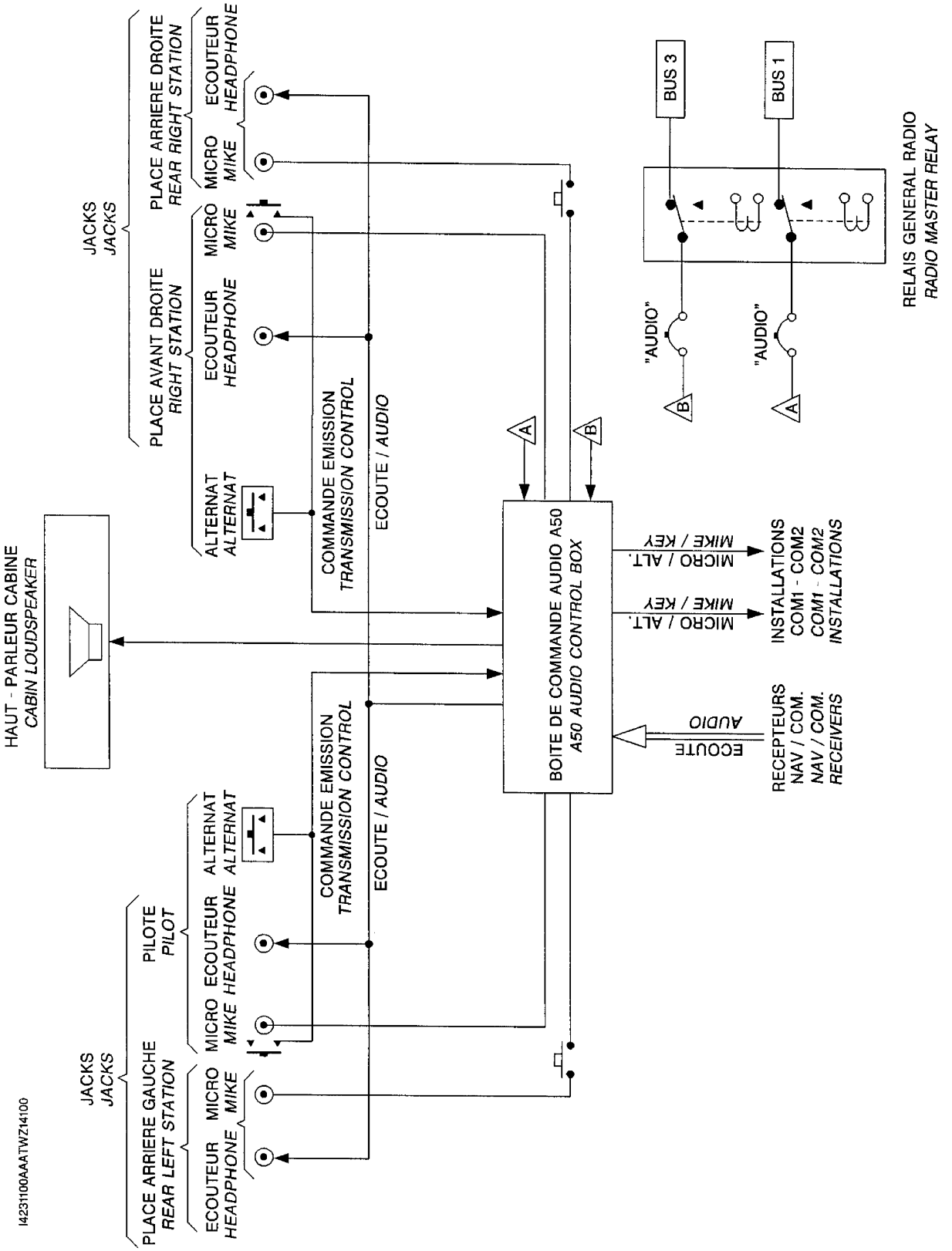
The system receives audio signals from :

- COM 1 installation (if installed) – refer to 23–12–00,
- COM 2 installation (if installed) – refer to 23–13–00,
- the Marker system (if installed) – refer to 34–31–00,
- the NAV 1 installation (if installed) – refer to 34–51–00,
- the NAV 2 installation (if installed) – refer to 34–52–00,
- the automatic direction finder system (if installed) – refer to 34–54–00,
- the DME installation (if installed) – refer to 34–55–00.

The system receives unmuted audio signals or warning tones from :

- the global positioning system (GPS) (if installed) – refer to 34–57–00,
- the altitude / vertical speed selector (if installed) – refer to 22–12–00,
- the aural warning unit (landing gear–stall) only for aircraft equipped with retractable landing gear – refer to 31–50–00.

The A50 audio control box is electrically supplied by "BUS 1" and "BUS 3" bars.



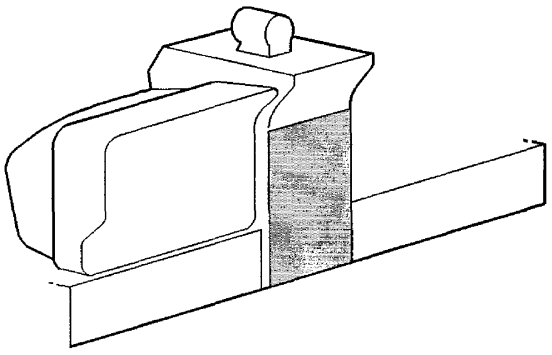
VHF capability – Electrical schematic
Figure 1

2. LOCATION (Figures 2 and 3)

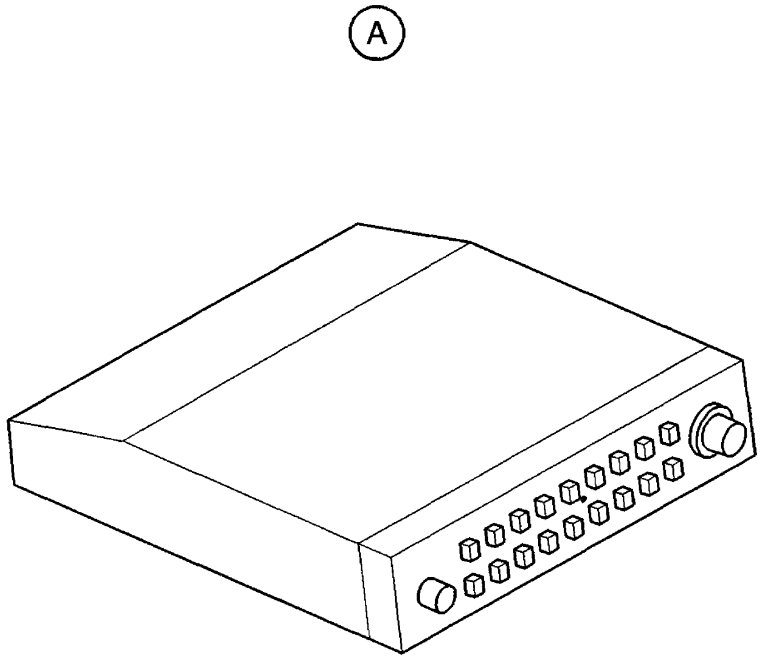
COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A50 audio control box	1	251C	/	23–10–00
Cabin loudspeaker	1	240	/	23–11–00
Pilot connection jacks	/	236	/	23–11–00
R.H. front station connection jacks	/	236	/	23–11–00
Rear passenger connection jacks	/	236	/	23–11–00
Hand–held microphone	1	236	/	23–11–00
Circuit breaker : – "AUDIO"	2	230	232L	WM

3. OPERATION

NOTE : For equipment operation and maintenance, refer to the supplier's Maintenance Manual.



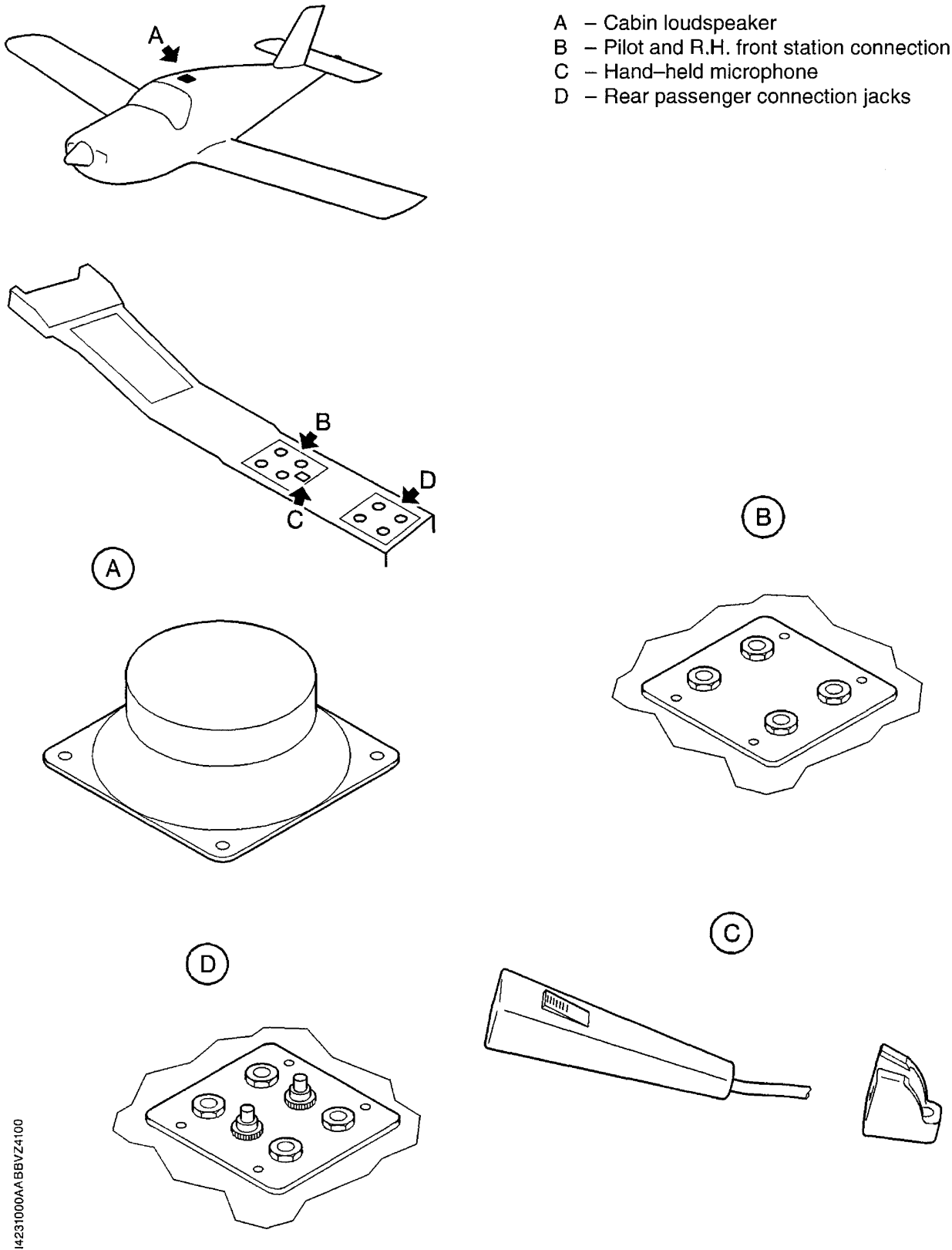
A – A50 audio control box



I4231100AABWZ4100

VHF capability – Identification and location of components
Figure 2

A – Cabin loudspeaker
B – Pilot and R.H. front station connection jacks
C – Hand–held microphone
D – Rear passenger connection jacks



VHF capability – Identification and location of components
Figure 3

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VHF CAPABILITY

DESCRIPTION AND OPERATION

1. GENERAL (Figure 1)

The optional VHF capability system allows operating the radiocommunication means (VHF) as well as the radionavigation messages (VOR, DME, ADF and MKR).

The VHF capability system also ensures the interphone function and allows receiving warning information.

The system consists of :

- an A50 audio control box,
- a cabin loudspeaker,
- connecting jacks,
- push–to–talk switches on R.H. and L.H. control wheels,
- a hand–held microphone.

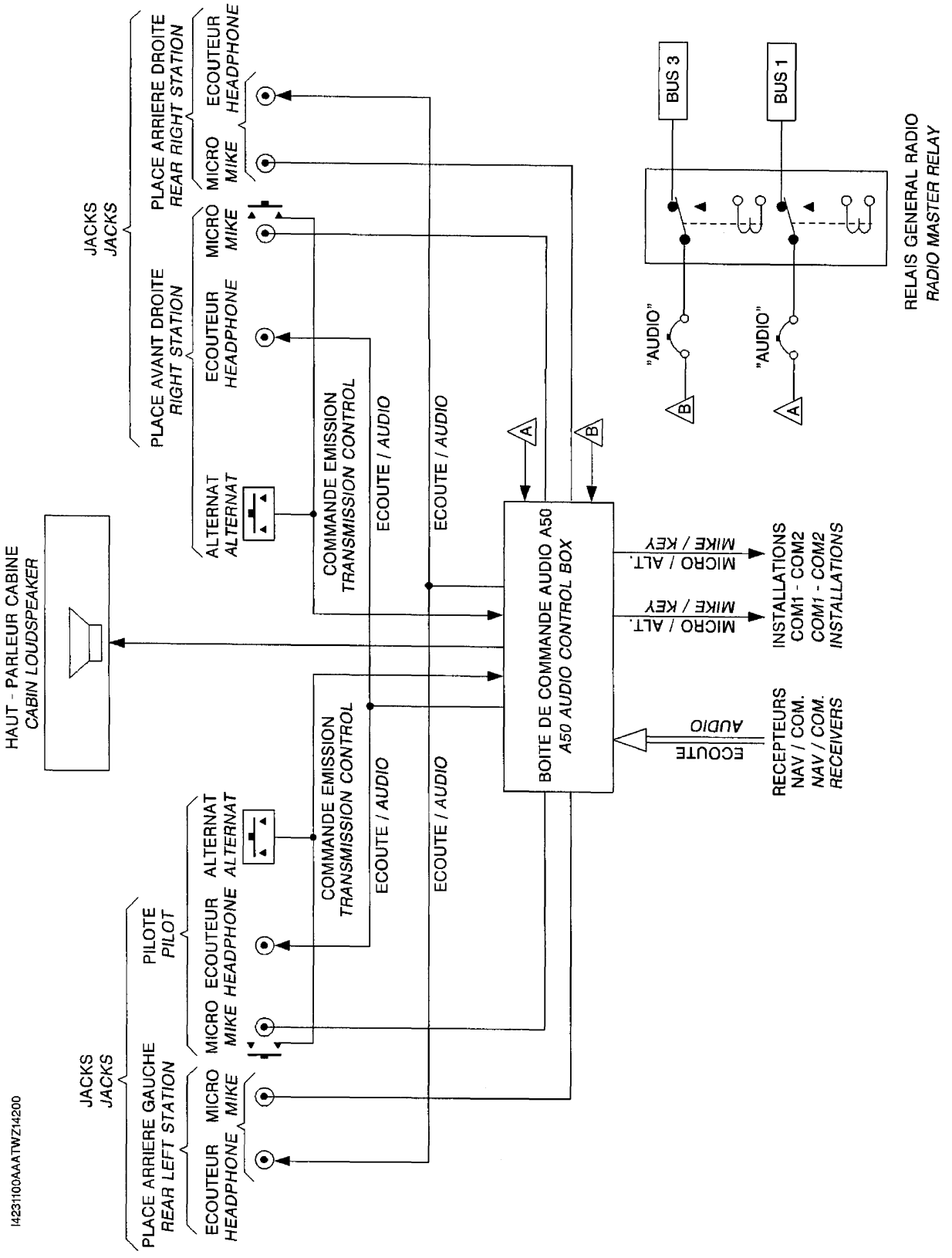
The system receives audio signals from :

- COM 1 installation (if installed) – refer to 23–12–00,
- COM 2 installation (if installed) – refer to 23–13–00,
- the Marker system (if installed) – refer to 34–31–00,
- the NAV 1 installation (if installed) – refer to 34–51–00,
- the NAV 2 installation (if installed) – refer to 34–52–00,
- the automatic direction finder system (if installed) – refer to 34–54–00,
- the DME installation (if installed) – refer to 34–55–00.

The system receives unmuted audio signals or warning tones from :

- the global positioning system (GPS) (if installed) – refer to 34–57–00,
- the altitude / vertical speed selector (if installed) – refer to 22–12–00,
- the aural warning unit (landing gear–stall) only for aircraft equipped with retractable landing gear – refer to 31–50–00.

The A50 audio control box is electrically supplied by "BUS 1" and "BUS 3" bars.



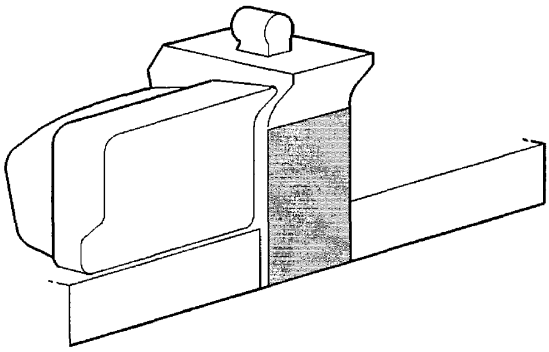
VHF capability – Electrical schematic
Figure 1

2. LOCATION (Figures 2 and 3)

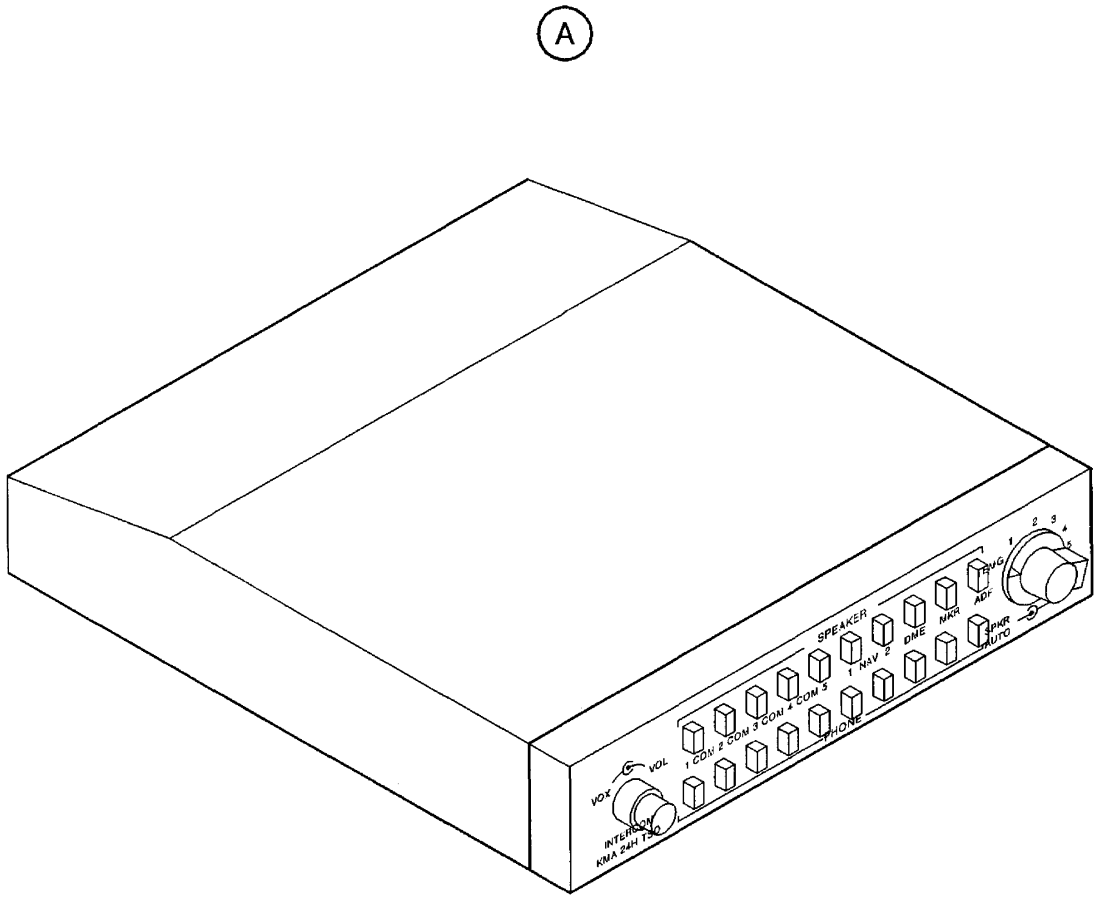
COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A50 audio control box	1	251C	/	23–10–00
Cabin loudspeaker	1	240	/	23–11–00
Pilot connection jacks	/	236	/	23–11–00
R.H. front station connection jacks	/	236	/	23–11–00
Rear passenger connection jacks	/	236	/	23–11–00
Hand–held microphone	1	236	/	23–11–00
Circuit breaker : – "AUDIO"	2	230	232L	WM

3. OPERATION

NOTE : For equipment operation and maintenance, refer to the supplier's Maintenance Manual.

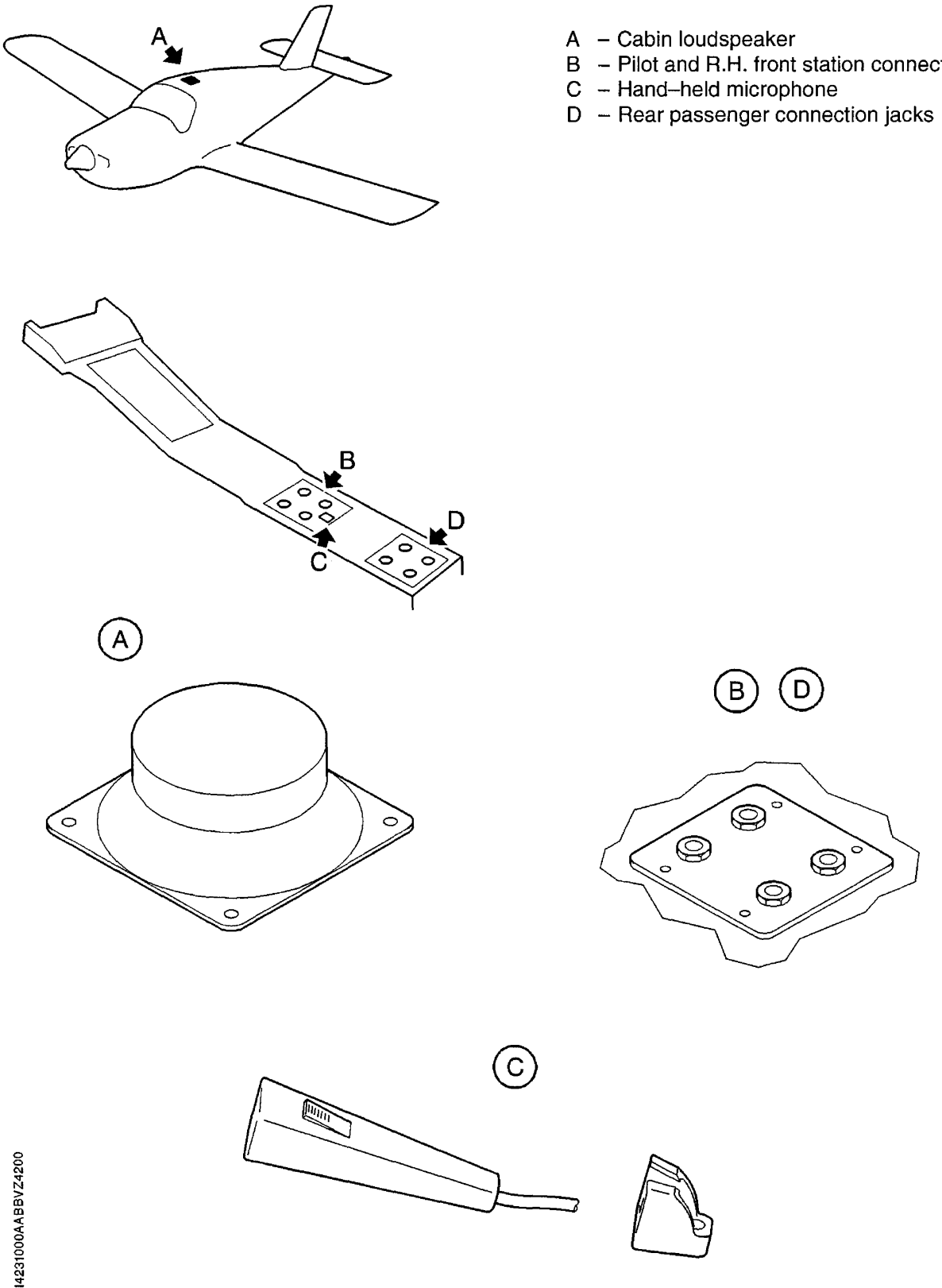


A – A50 audio control box



I4231100AAABWZ4000

VHF capability – Identification and location of components
Figure 2



A – Cabin loudspeaker
B – Pilot and R.H. front station connection jacks
C – Hand–held microphone
D – Rear passenger connection jacks

VHF capability – Identification and location of components
Figure 3

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VHF CAPABILITY

DESCRIPTION AND OPERATION

1. GENERAL

The VHF capability system enables the radiocommunication means and the radionavigation audio signals (VOR, DME, ADF and MKR) to be operated.

The VHF capability system also ensures the intercom function and certain audio warning signals.

The system consists of :

- an A50 audio control panel,
- a cabin loudspeaker,
- E001-E004, E013-E016 headset connection jacks,
- headset(s) (Option).

With BOSE headset

- J81, J82, J21, J22 headset connection plugs,
- headset(s).

All

- a hand microphone.
- an E60 "MUSIC IN" jack,
- an S43 "CREW MUSIC" selector.

The A50 audio control panel ensures the passenger entertainment function.

The A50 audio control panel incorporates the MARKER function – refer to 34-31-00.

The A50 audio control panel is electrically supplied by "BUS 1" bar.

2. LOCATION (Figures 1 and 2)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A50 audio control panel	1	251C	/	23-10-00
Cabin loudspeaker	1	241	/	23-11-00
E001-E004, E013-E016 headset connection jacks	/	236	/	23-11-00
J81, J82, J21, J22 headset connection plugs (Option)	/	236	/	23-11-00
E60 "MUSIC IN" jack	/	251C	/	23-11-00

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
S43 "CREW MUSIC" selector	/	251C	/	23-11-00
Circuit breakers : - CB 84 "AUDIO" - CB 81 "HEADSETS" (Option)	 1 1	 PL1 PL1	 / /	 WM WM

3. DESCRIPTION

A. A50 audio control panel (Figure 3)

The A50 audio control panel ensures :

- the selection, at the headset and the loudspeaker amplifiers, of the different signals of the radionavigation and radiocommunication systems,
- the selection, for transmission, of one of the radiocommunication systems which equip the aircraft,
- the intercom function for the pilot and the passengers,
- the listening to certain audio warning signals without the possibility to interrupt these audio signals.

The equipment front panel features :

- the "Volume" knob (1) for energization and volume adjustment of the intercom,
- two rows of latched pushbuttons (2) to select the audio systems installed on the aircraft,
- a function selector (3) ensuring the selection for transmission of the VHF or HF radiocommunication systems, if installed.
- an intercom mode selector (8) (Iso - All - Crew),
- a photo detector (7) ensuring the lighting of the front panel according to brightness,
- an "ICS" crew intercom selector (6),
- a loudspeaker selector switch (5),
- a transmission indicator (4).

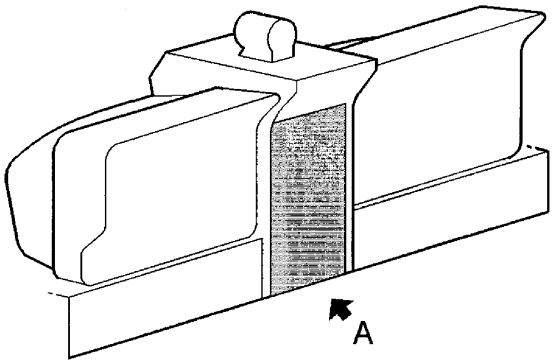
The push-to-talk switches, the connection jacks, the connection plugs (option) and the cabin loudspeaker are associated to A50 audio control panel.

Electrical power supply is provided by "BUS 1" bar.

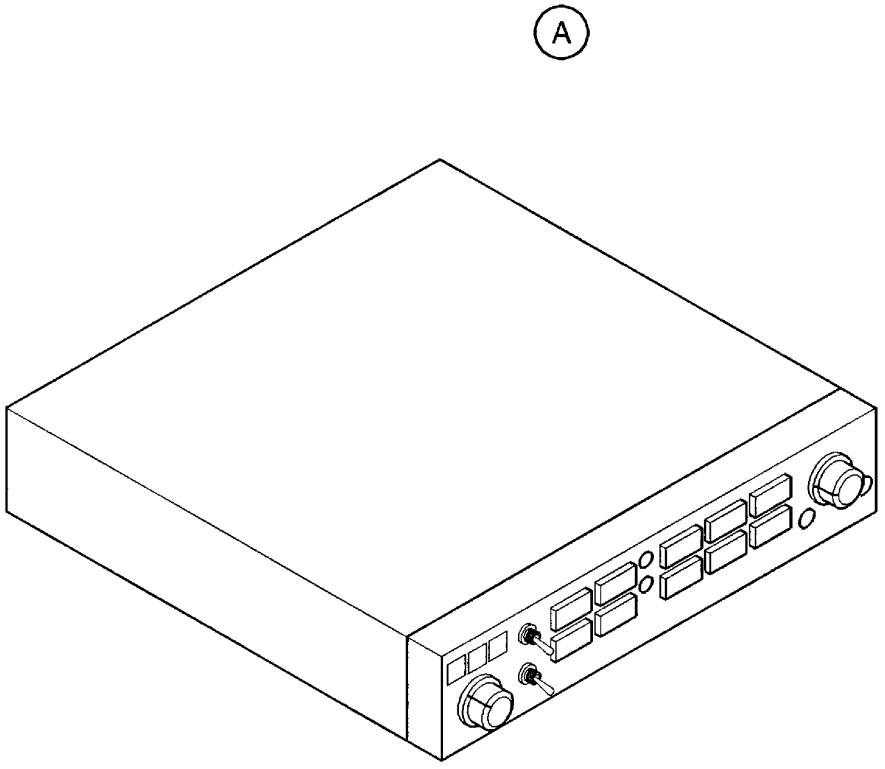
The power supply line is protected by CB 84 "AUDIO" circuit breaker.

The A50 audio control panel is mounted in the upper portion of PL30 radio rack.

A - A50 audio control panel



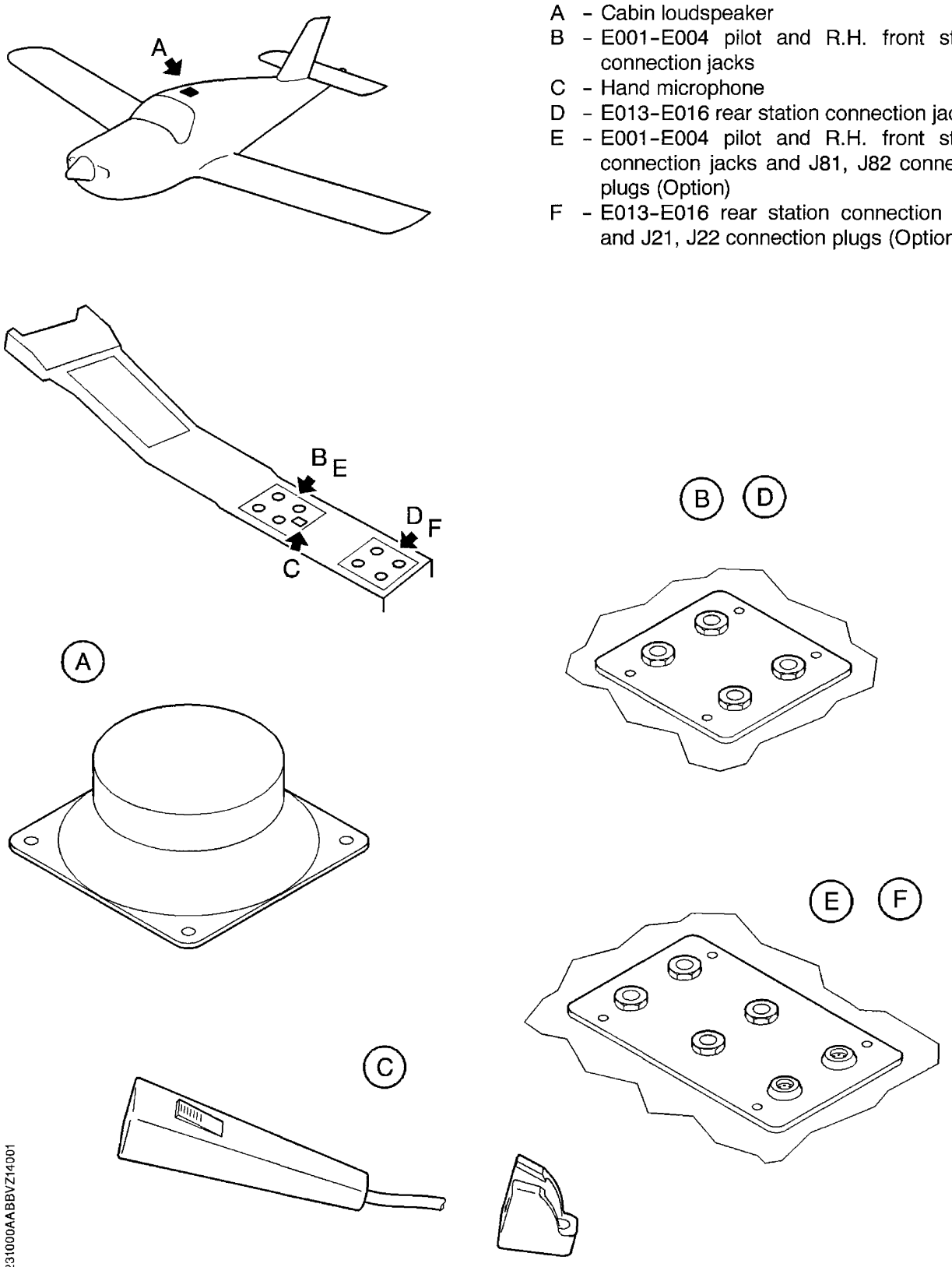
Variante de localisation
Alternate location



I4231100AAAUVZ4000

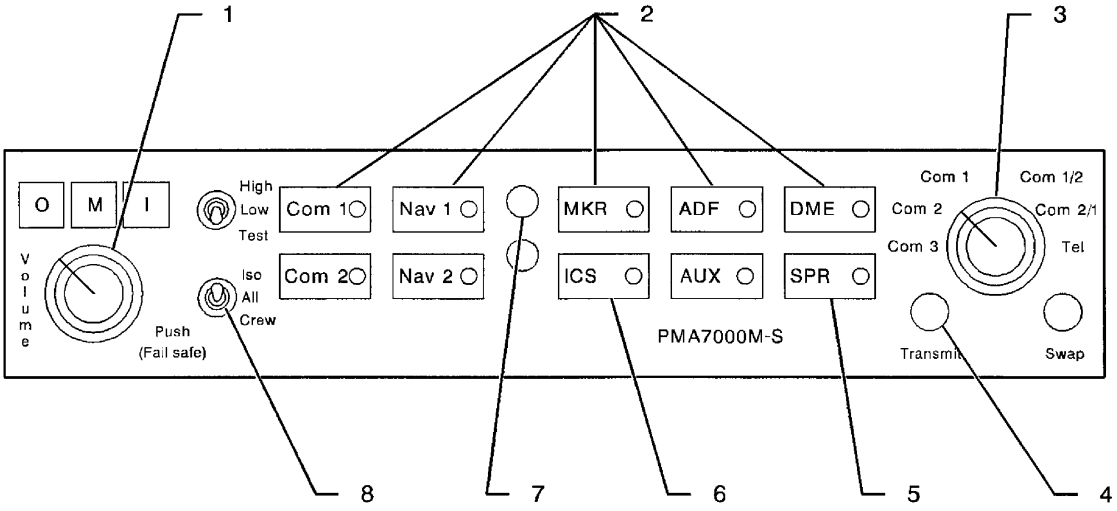
VHF capability – Identification and location of components
Figure 1

A - Cabin loudspeaker
B - E001-E004 pilot and R.H. front station connection jacks
C - Hand microphone
D - E013-E016 rear station connection jacks
E - E001-E004 pilot and R.H. front station connection jacks and J81, J82 connection plugs (Option)
F - E013-E016 rear station connection jacks and J21, J22 connection plugs (Option)



VHF capability – Identification and location of components
Figure 2

1 - Volume knob
2 - Latched pushbuttons
3 - Function selector
4 - Transmission indicator
5 - Loudspeaker selector switch
6 - Crew intercom selector
7 - Photo detector
8 - Intercom mode selector



I4231100AAAUVZ4100

VHF capability – A50 audio control panel
Figure 3

B. Cabin loudspeaker

The cabin loudspeaker ensures audio distribution inside the cabin.

It is mounted on the overhead panel.

C. Connection jacks, connection plugs

The E001-E004 connection jacks are mounted on the support plate of tunnel No. 236. These jacks enable headsets or hand microphones to be connected to the aircraft system.

With BOSE headset

J81 and J82 [J21 and J22] connection plugs are mounted on the same plate as E001-E004 [E013-E016] jacks. They enable headsets to be connected with active noise attenuation. Headsets are electrically supplied via connection plugs, by "BUS 1" bar and protected by CB 81 "HEADSETS" circuit breaker.

D. S43 "CREW MUSIC" selector

S43 selector enables to interrupt music at pilot and R.H. front stations.

4. OPERATION

The "RADIO MASTER" switch controls the energization of all radionavigation and radiocommunication systems.

Electrical power supply to radiocommunication and radionavigation systems is automatically interrupted during engine starting.

On A50 audio control panel, a single stroke on the "Volume" knob permits energization of the panel and volume adjustment of the intercom system.

The selection of one of the radiocommunication or radionavigation systems is obtained by setting the latched pushbutton corresponding to the desired audio, in latched position.

The transmission selection function is ensured by the R.H. function selector.

- "Com 1", "Com 2" and "Com 3" switch on their respective systems.
- "Com1/2" switches the pilot on Com 1 and the R.H. front station on Com 2.
- "Com 2/1" switches the pilot on Com 2 and the R.H. front station on Com 1.
- "Tel" is not used.

The loudspeaker function is ensured by the "SPR" latched pushbutton.

The intercom function is ensured by the mode selector (Iso - All - Crew) :

- "Iso" position, the pilot is connected only to the selected radio, the R.H. front station remains connected to the passengers.
- "All" position, the pilot, the R.H. front station and the passengers are connected to the aircraft radio and intercom.
- "Crew" position, the pilot and the R.H. front station are connected together, the passengers can continue to communicate with each other.
- The "ICS" latched pushbutton permits, in "Com 1/2" or "Com 2/1" mode, the intercom function between the pilot and the R.H. front station.

The "Transmit" indicator comes on when transmission is initiated.

The "Swap" indicator is not used.

It is possible to connect a music source to the E60 "MUSIC IN" jack. Passengers have music permanently connected to E60 jack. If S43 selector is set to "ON", it is possible to listen to music from pilot and R.H. front stations. If the selector is set to "OFF", pilot and R.H. front stations are isolated from music.

With BOSE headset

BOSE headsets provide acoustic comfort via active attenuation of ambient noise. In case of bad operation of a headset, the pilot or passenger can use the traditional headset via E001-E004 or E013-E016 connection jacks.

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VHF CAPABILITY

DESCRIPTION AND OPERATION

1. GENERAL

The VHF capability system enables the radiocommunication means and the radionavigation audio signals (VOR, DME, ADF and MKR) to be operated.

The VHF capability system also ensures the intercom function and certain audio warning signals.

The system consists of :

- an A50 audio control panel,
- a cabin loudspeaker,
- E001-E004, E013-E016 headset connection jacks,
- headset(s) (Option).

With BOSE headset

- J81, J82, J21, J22 headset connection plugs,
- headset(s).

All

- a hand microphone.
- an E60 "MUSIC IN" jack,
- an S43 "CREW MUSIC" selector.

The A50 audio control panel ensures the passenger entertainment function.

The A50 audio control panel incorporates the MARKER function – refer to 34-31-00.

The A50 audio control panel is electrically supplied by "BUS 1" bar.

2. LOCATION (Figures 1 and 2)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A50 audio control panel	1	251C	/	23-10-00
Cabin loudspeaker	1	241	/	23-11-00
E001-E004, E013-E016 headset connection jacks	/	236	/	23-11-00
J81, J82, J21, J22 headset connection plugs (Option)	/	236	/	23-11-00
E60 "MUSIC IN" jack	/	251C	/	23-11-00

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
S43 "CREW MUSIC" selector	/	251C	/	23-11-00
Circuit breakers : - CB 84 "AUDIO" - CB 81 "HEADSETS" (Option)	 1 1	 PL1 PL1	 / /	 WM WM

3. DESCRIPTION

A. A50 audio control panel (Figure 3)

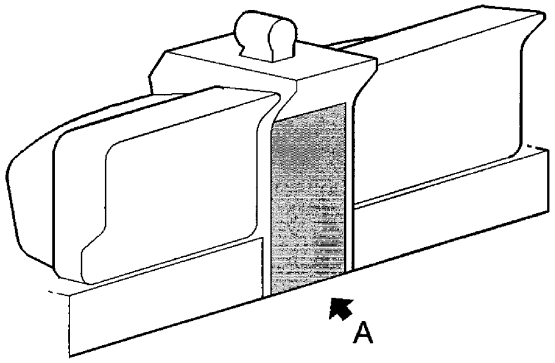
The A50 audio control panel ensures :

- the selection, at the headset and the loudspeaker amplifiers, of the different signals of the radionavigation and radiocommunication systems,
- the selection, for transmission, of one of the radiocommunication systems which equip the aircraft,
- the intercom function for the pilot and the passengers,
- the listening to certain audio warning signals without the possibility to interrupt these audio signals.

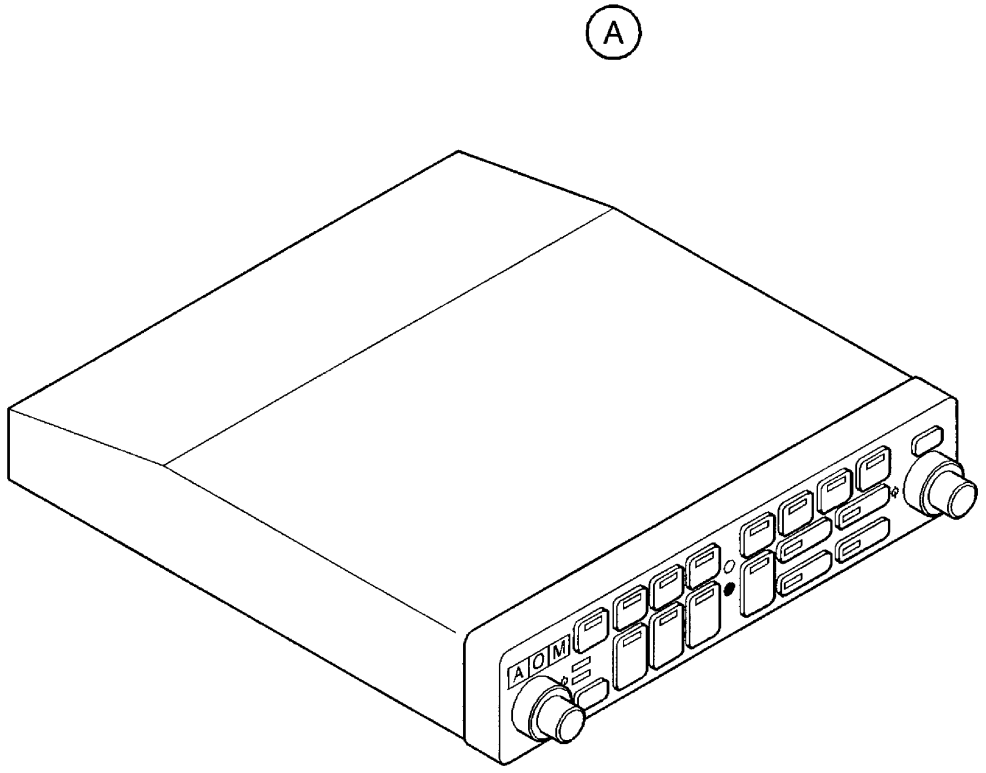
The equipment front panel features :

- two "PILOT" concentric knobs (1) :
  - . the inner knob for equipment energization and volume adjustment of the intercom function at pilot station,
  - . the outer knob for squelch level of the intercom function at pilot station,
- three pushbuttons (2) to select the radiocommunication systems installed on the aircraft,
- four pushbuttons (3) to select the radionavigation systems installed on the aircraft,
- a "TEST" pushbutton (4) to check, on equipment front panel, the LED type and MKR function indicator lights.
- two "COPILOT" concentric knobs (5) :
  - . the inner knob for volume control of the intercom function at R.H. front and rear stations,
  - . the outer knob for squelch level of the intercom function at R.H. front and rear stations.
- two "ICS ISOLATION" (6) pushbuttons to select one of the 3 intercom function modes (PILOT, CREW, ALL).
- two "CABIN AUDIO" (7) pushbuttons :
  - . the "PA" pushbutton to select the "PASSENGER ADDRESS" function,
  - . the "SPKR" pushbutton to activate the cabin loudspeaker.
- a "COM 1/2" (8) pushbutton for the separation of the COM function between pilot and R.H. front stations.
- three "COM / MIC" pushbuttons (9) to select during transmission one of the radiocommunication systems which equip the aircraft.

A - A50 audio control panel



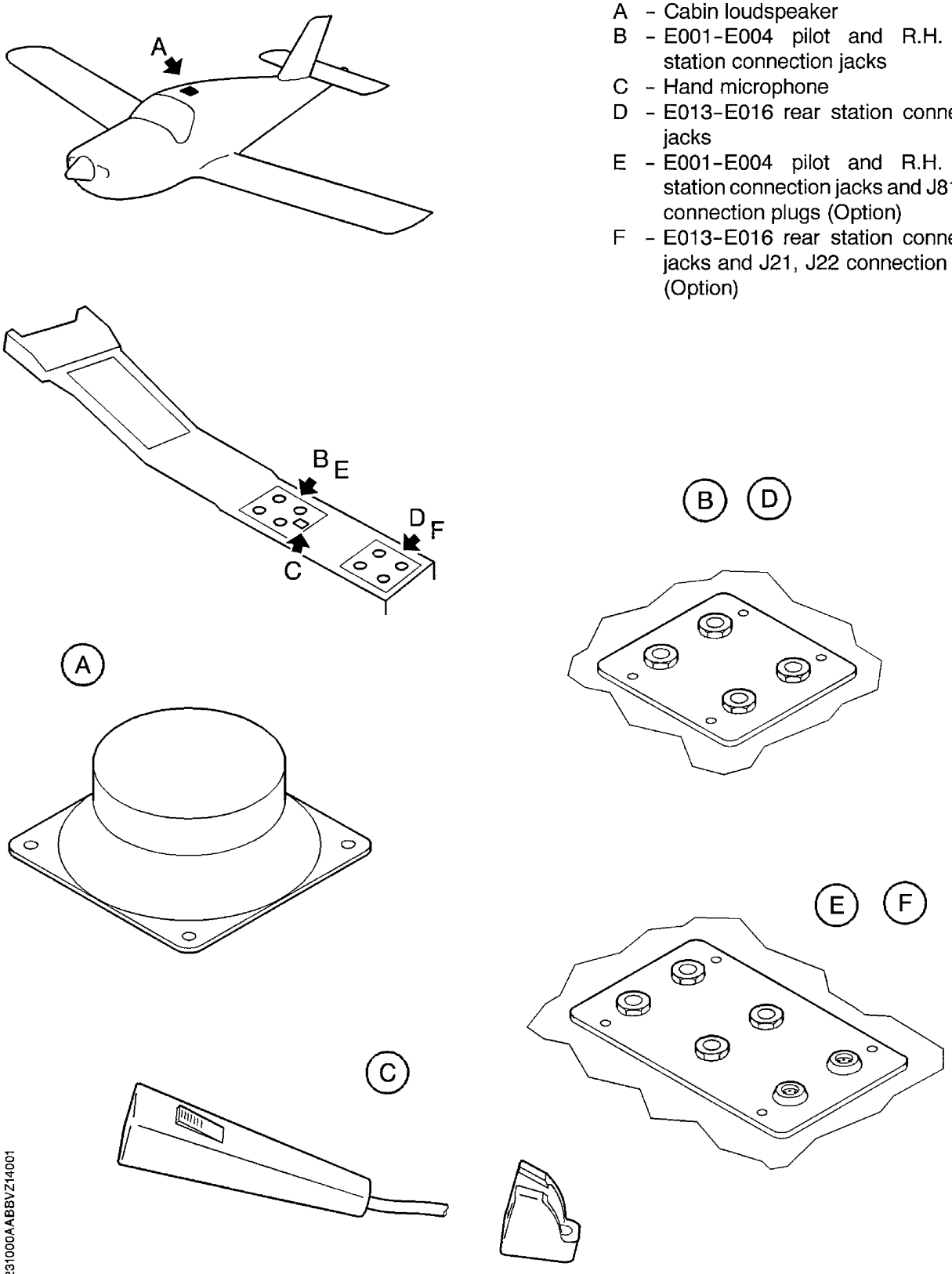
Variante de localisation
Alternate location



I4231100AAAUVZ4200

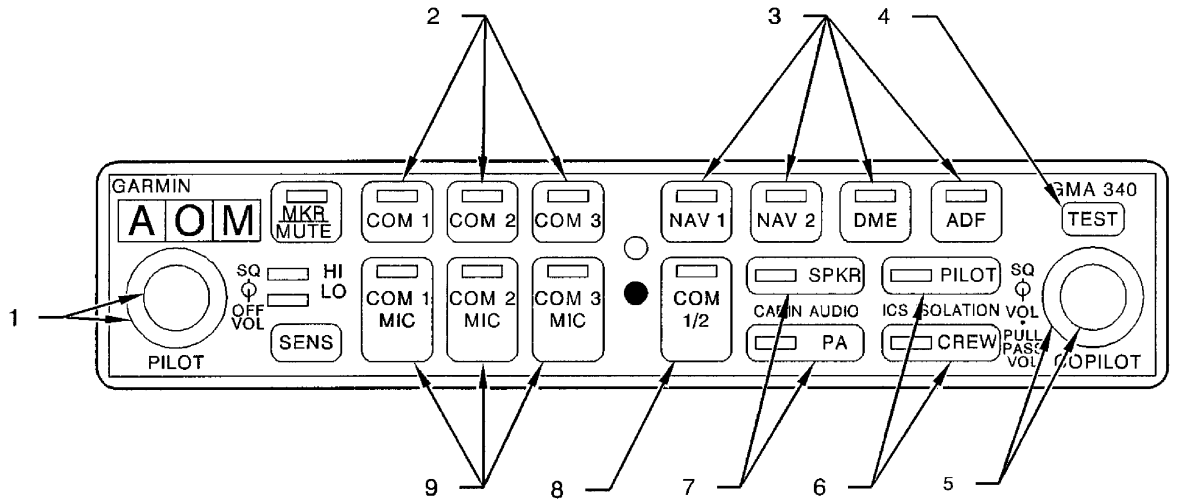
VHF capability – Identification and location of components
Figure 1

A - Cabin loudspeaker
B - E001-E004 pilot and R.H. front station connection jacks
C - Hand microphone
D - E013-E016 rear station connection jacks
E - E001-E004 pilot and R.H. front station connection jacks and J81, J82 connection plugs (Option)
F - E013-E016 rear station connection jacks and J21, J22 connection plugs (Option)



VHF capability – Identification and location of components
Figure 2

1 - "PILOT" concentric knobs
2 - Pushbuttons (Radiocommunication system)
3 - Pushbuttons (Radionavigation systems)
4 - "TEST" pushbutton
5 - "COPILOT" concentric knobs
6 - "ICS ISOLATION" pushbuttons
7 - "CABIN AUDIO" pushbuttons
8 - "COM 1/2" pushbutton
9 - "COM/MIC" pushbuttons



I4231100AAAVVZ4000

VHF capability - A50 audio control panel
Figure 3

The push-to-talk switches, the connection jacks, the connection plugs (option) and the cabin loudspeaker are associated to A50 audio control panel.

The A50 audio control panel is electrically supplied by "BUS 1" bar and is protected by CB 84 "AUDIO" circuit breaker.

The A50 audio control panel is mounted in the upper portion of PL30 radio rack.

B. Cabin loudspeaker

The cabin loudspeaker ensures audio distribution inside the cabin.

It is mounted on the overhead panel.

C. Connection jacks, connection plugs

The E001-E004 and E013-E016 connection jacks are mounted on the support plate of tunnel No. 236. They enable headsets or hand microphones to be connected to the aircraft system.

With BOSE headset

J81 and J82 [J21 and J22] connection plugs are mounted on the same plate as E001-E004 [E013-E016] jacks. They enable headsets to be connected with active noise attenuation. Headsets are electrically supplied via connection plugs, by "BUS 1" bar and protected by CB 81 "HEADSETS" circuit breaker.

D. S43 "CREW MUSIC" selector

S43 selector enables to interrupt music at pilot and R.H. front stations.

4. OPERATION

The "RADIO MASTER" switch controls the energization of all radionavigation and radiocommunication systems.

Electrical power supply to radiocommunication and radionavigation systems is automatically interrupted during engine starting.

On A50 audio control panel, the "PILOT" inner knob enables energization of the equipment. The "PILOT" concentric knob for pilot station and the "COPILOT" concentric knob for R.H. front and rear stations enable to set the volume and squelch of the intercom function.

"ICS ISOLATION" (6) pushbuttons enable to select one of the 3 intercom function modes :

- "PILOT" pushbutton actuated (LED on) : the pilot is no longer connected with R.H. front and rear stations with intercom function. He is the only one to be connected to radiocommunication and radionavigation audio systems.
- "CREW" pushbutton actuated (LED on) : the pilot and R.H. front stations are connected to radiocommunication and radionavigation audio systems, and are connected together with intercom function. At rear stations, passengers can communicate with each other but not with front stations.
- "PILOT" and "CREW" pushbuttons not actuated (LED off) : pilot, R.H. front and rear stations are connected to radiocommunication and radionavigation audio systems, and are connected together with intercom function.

To select a radiocommunication or radionavigation audio system, press the pushbutton corresponding to the necessary audio system (LED on).

"COM/MIC" pushbuttons select, for transmission, one of the radiocommunication systems which equip the aircraft. If "COM 1/2" pushbutton is actuated, the pilot station is connected with COM1 aircraft system and the R.H front station is connected with COM2.

It is possible to connect a music source to the E60 "MUSIC IN" jack. Passengers have music permanently connected to E60 jack. If S43 selector is set to "ON", it is possible to listen to music from pilot and R.H. front stations, but not at pilot station if "ICS ISOLATION/PILOT" switch is on. It the selector is set to "OFF", pilot and R.H. front stations are isolated from music.

With BOSE headset

BOSE headsets provide acoustic comfort via active attenuation of ambient noise. In case of bad operation of a headset, the pilot or passenger can use the traditional headset via E001-E004 or E013-E016 connection jacks.

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COM 1 INSTALLATION

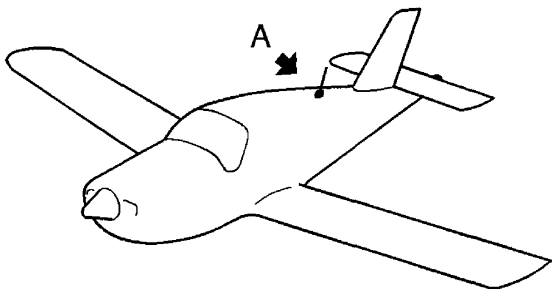
DESCRIPTION AND OPERATION

1. GENERAL

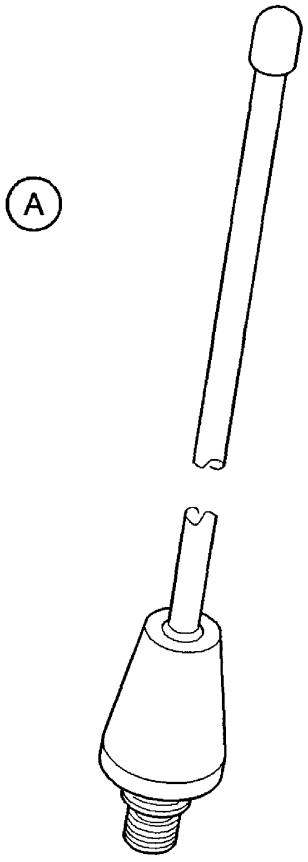
The standard COM 1 installation consists of a VHF antenna and its coaxial cable.

2. LOCATION (Figure 1)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
E31 antenna	1	220	242	/



A - E31 antenna



I4231000AAAAYZ4202

COM 1 installation - Identification and location of components
Figure 1

COM 1 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL (Figure 1)

The optional COM 1 installation allows radio transmissions necessary for air navigation.

The COM 1 installation includes :

- a VHF transceiver
- an antenna,
- master radio relays,
- a "RADIO MASTER" switch.

The installation also uses the A50 audio control box - refer to 23-11-00.

The COM 1 installation is electrically supplied by "BUS 1" bar.

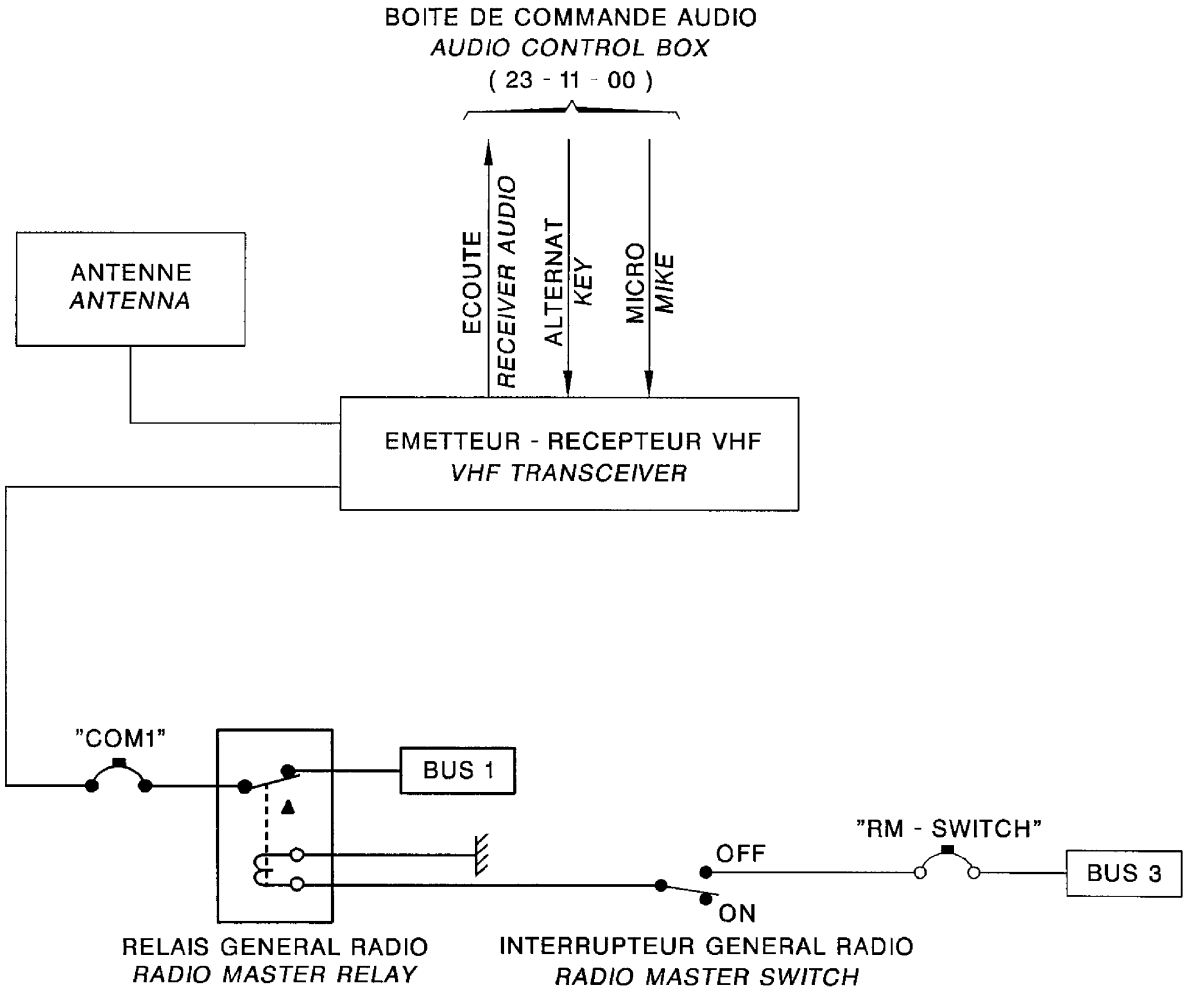
The master radio relays are electrically supplied by "BUS 3" bar.

2. LOCATION (Figures 2, 3 and 4)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
VHF transceiver	1	251C	/	23-10-00
Antenna	1	220	242	23-12-02
Master radio relays	1	230	/	23-12-06
"RADIO MASTER" switch	1	251C or 254L	/	23-12-00
Circuit breakers : - "COM 1" - "RM SWITCH"	 1 1	 230 230	 232L 232L	 WM WM

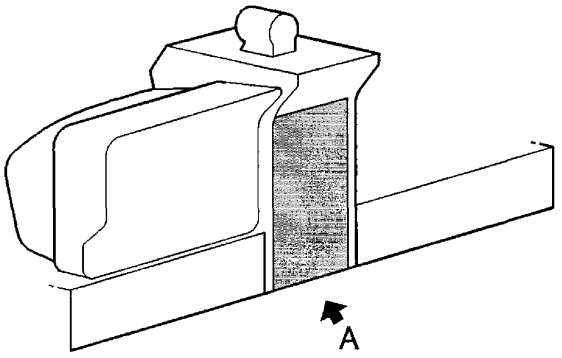
3. OPERATION

NOTE : For equipment operation and maintenance, refer to the supplier's Maintenance Manual.



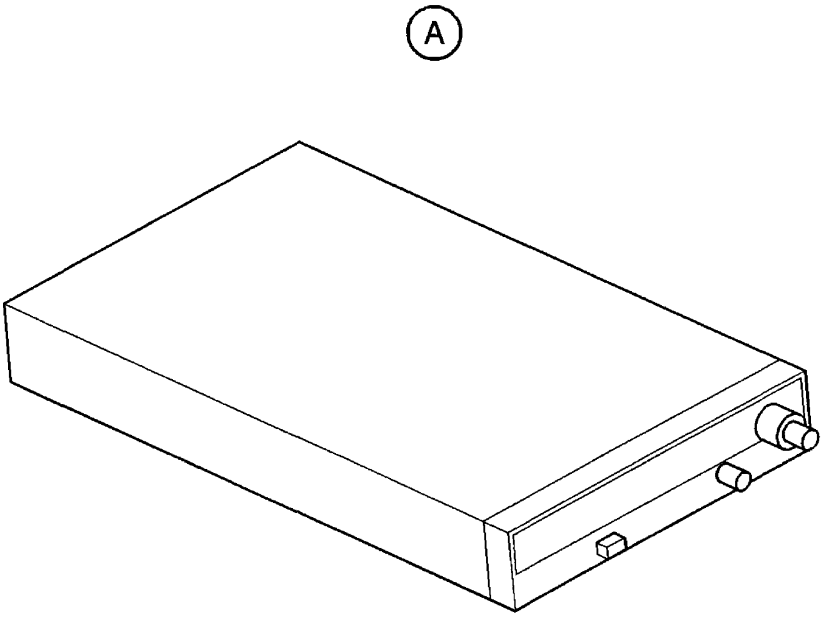
I4231200AAAQWZ4000

COM 1 installation - Electrical schematic
Figure 1



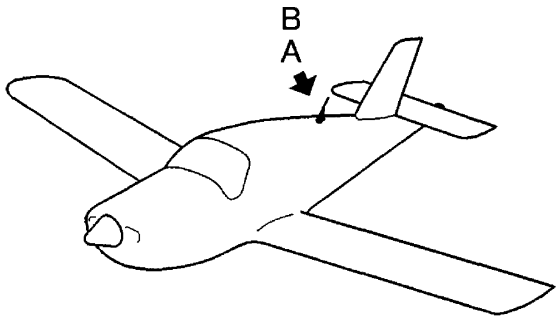
A – VHF transceiver

Variante de localisation
Alternate location

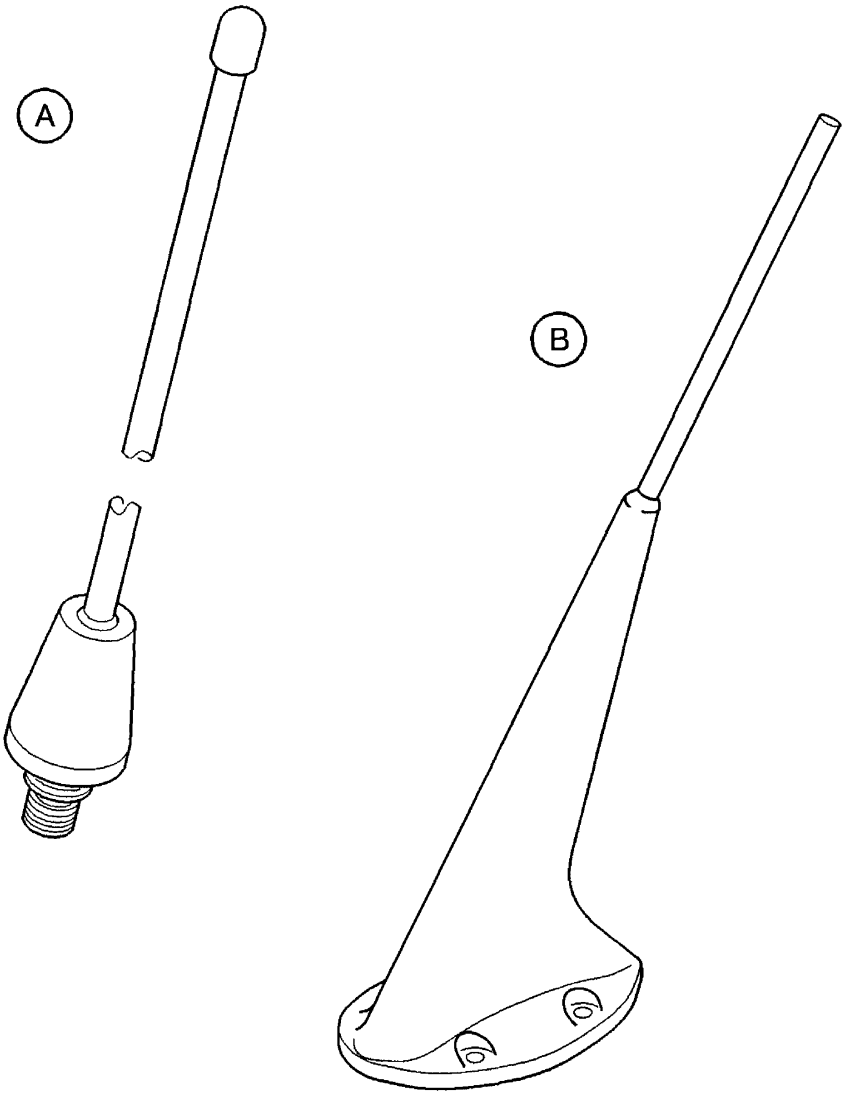


I4231000AABDVZ4200

COM 1 installation – Identification and location of components
Figure 2

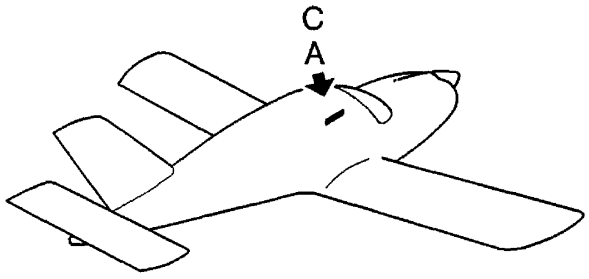


A – Standard antenna
B – Optional antenna

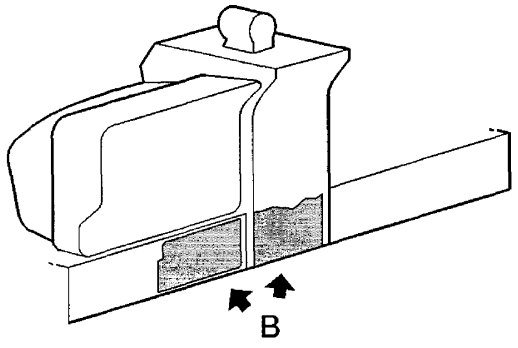


I4231000AAAAYZ14102

COM 1 installation – Identification and location of components
Figure 3



A – 3–relay master radio board
B – "RADIO MASTER" switch
C – 4–relay master radio board (Variant)



Variante de localisation
Alternate location

COM 1 installation – Identification and location of components
Figure 4

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COM 1 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL

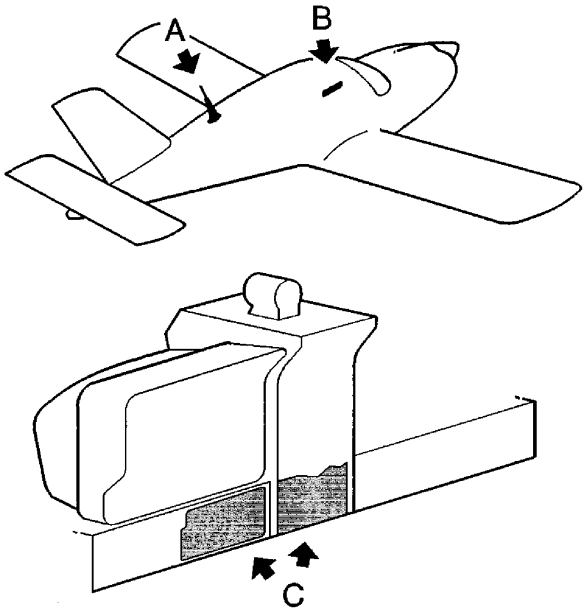
The installation consists of :

- the E31 antenna,
- the radio master relays,
- the S120 radio master switch.

The radio master relays are electrically supplied by "BUS 3" bar.

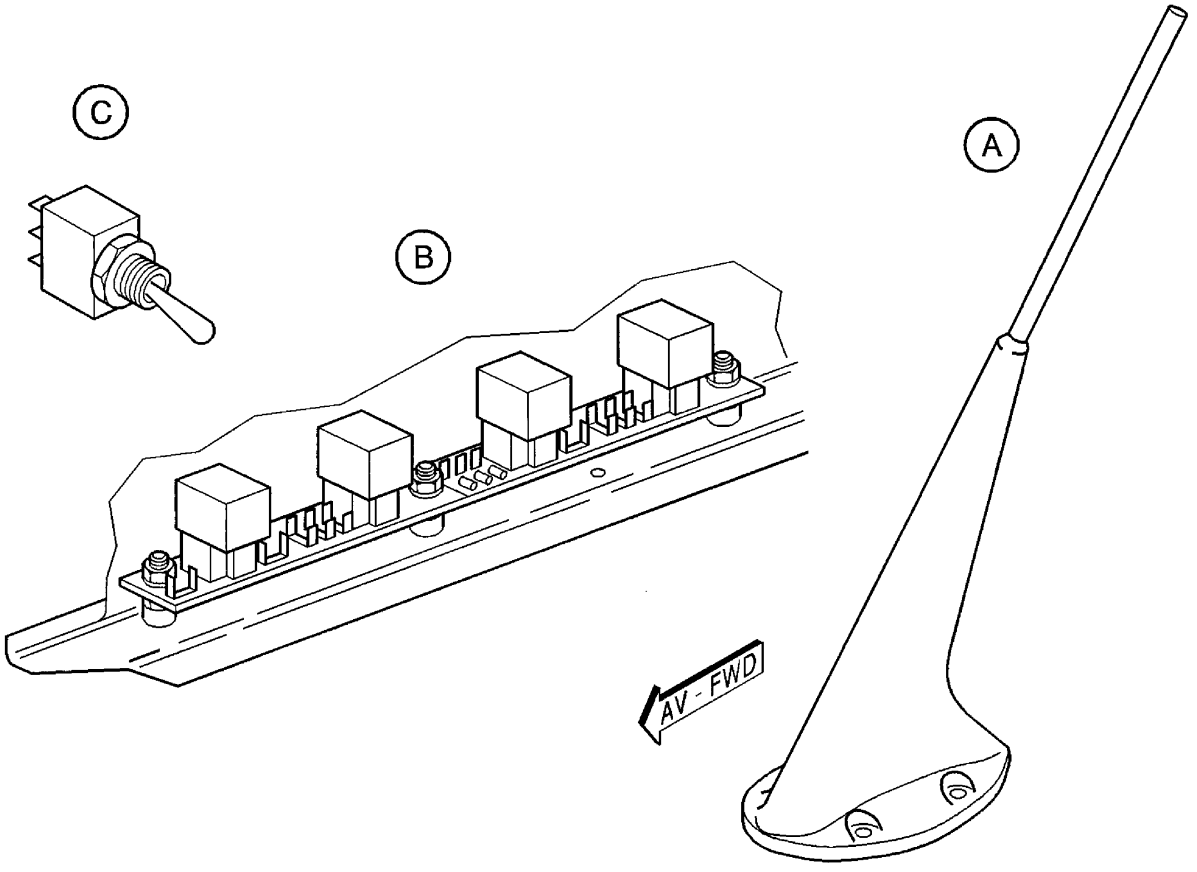
2. LOCATION (Figure 1)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
E31 antenna	1	220	/	23-12-02
Radio master relay	1	230	/	23-12-06
S120 radio master switch	1	251C or 254L	/	23-12-00
Circuit breakers : - CB 60 "RM SWITCH "	1	PL1	/	WM



A - E31 antenna
B - U15 printed circuit (radio master relay)
C - Radio master switch

Variante de localisation
Alternate location



I4231100AAARVZ4200

COM 1 installation – Identification and location of components
Figure 1

COM 1 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL (Figures 1 and 1A)

The optional COM 1 installation allows radio transmissions necessary for air navigation.

The COM 1 installation includes :

- a VHF-NAV / COMM transceiver,
- an antenna,
- master radio relays,
- a "RADIO MASTER" switch.

The navigation part of the VHF-NAV / COMM transceiver is described in 34-51-00.

The installation may also use the optional A50 audio control box - refer to 23-11-00.

The COM 1 installation is electrically supplied by "BUS 1" bar.

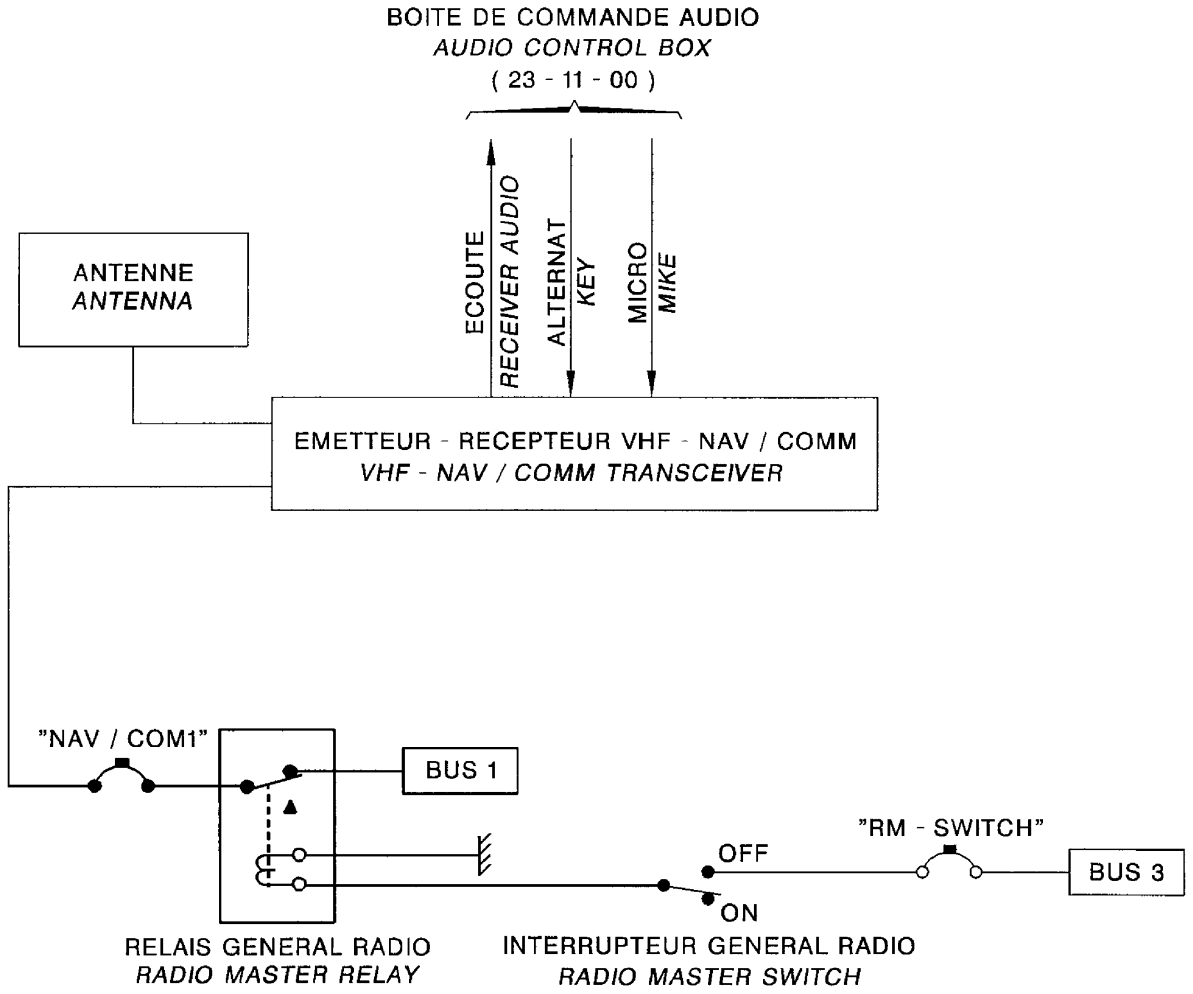
The master radio relays are electrically supplied by "BUS 3" bar.

2. LOCATION (Figures 2, 3 and 4)

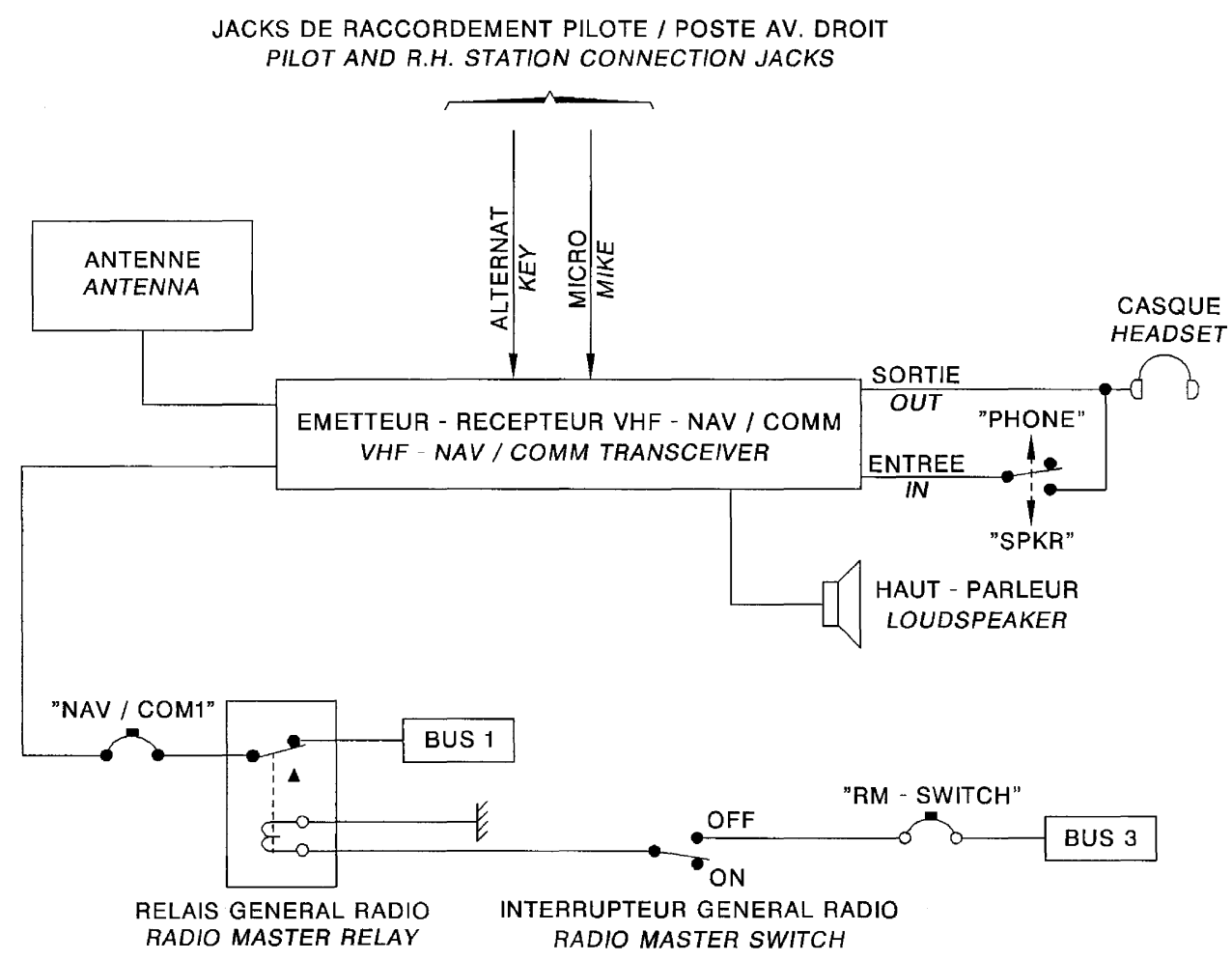
COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
VHF-NAV / COMM transceiver	1	251C	/	23-10-00
Antenna	1	220	242	23-12-02
Master radio relays	3 or 4	230	/	23-12-06
"RADIO MASTER" switch	1	251C or 254L	/	23-12-00
Circuit breakers : - "NAV / COM 1" - "RM SWITCH"	 1 1	 230 230	 232L 232L	 WM WM

3. OPERATION

NOTE : For equipment operation and maintenance, refer to the supplier's Maintenance Manual.

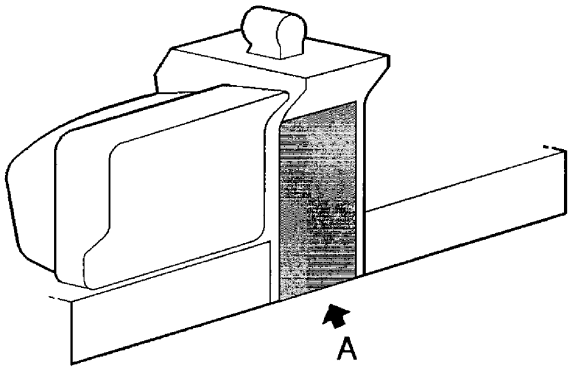


COM 1 installation - Schematic
Figure 1 - KX 155 / KX 165 with audio control box



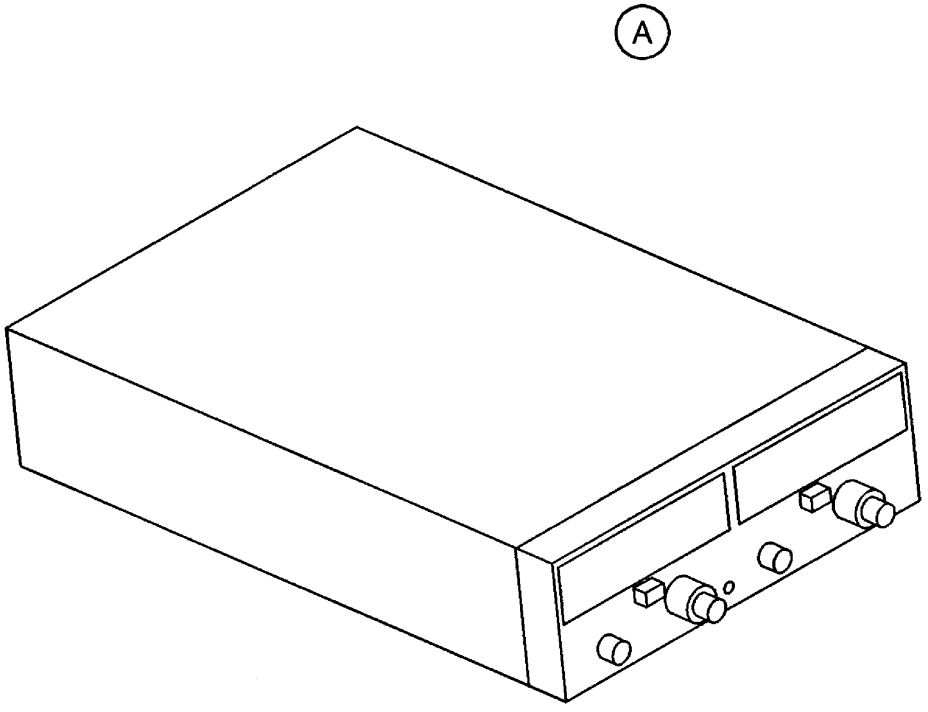
I4231200AAAQWZ24000

COM 1 installation - Schematic
Figure 1A - KX 155 without audio control panel



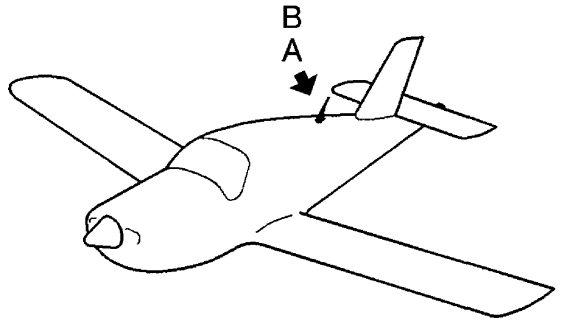
A - VHF-NAV / COMM transceiver

Variante de localisation
Alternate location

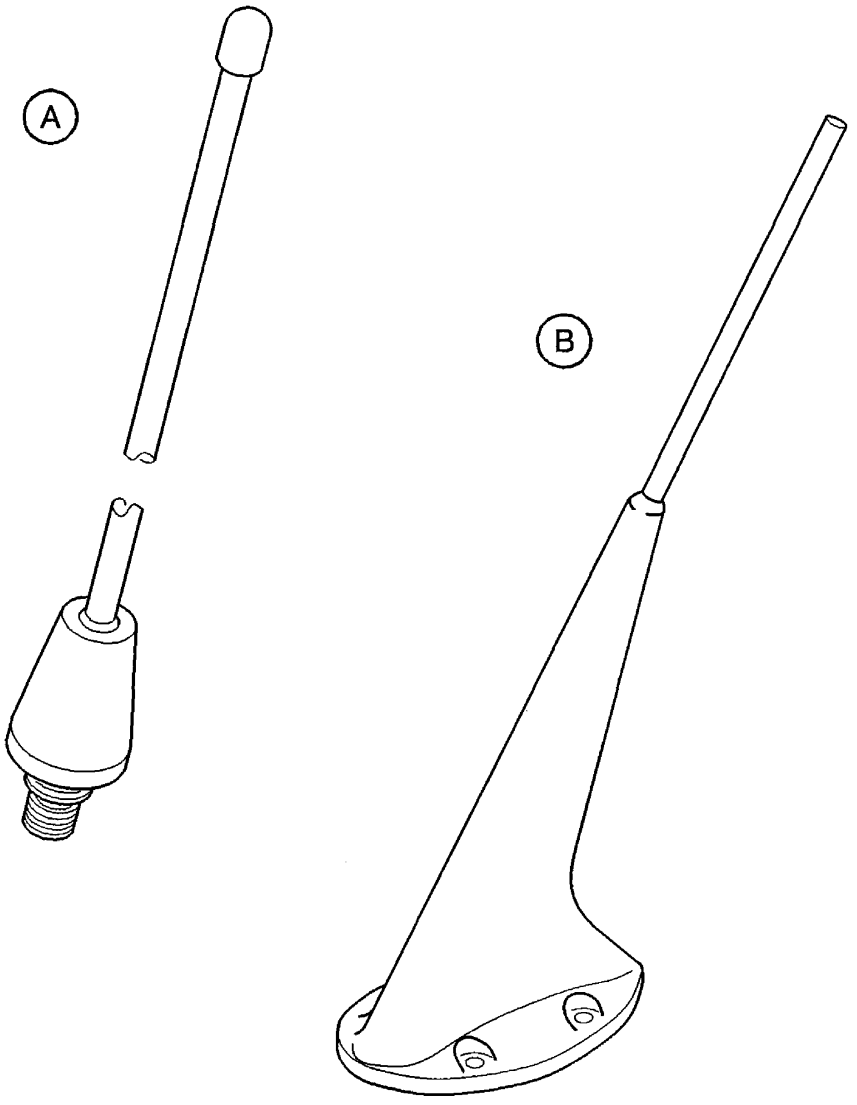


I4345100AAAFVZ14100

COM 1 installation - Identification and location of components
Figure 2

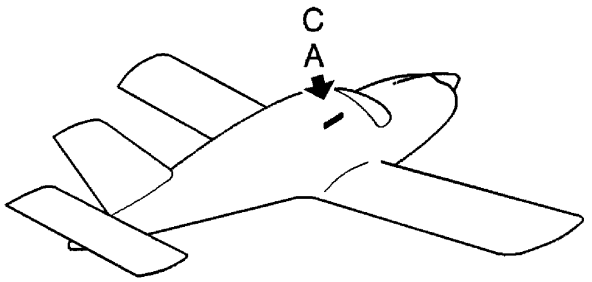


A - Antenna
B - Antenna (Variant)

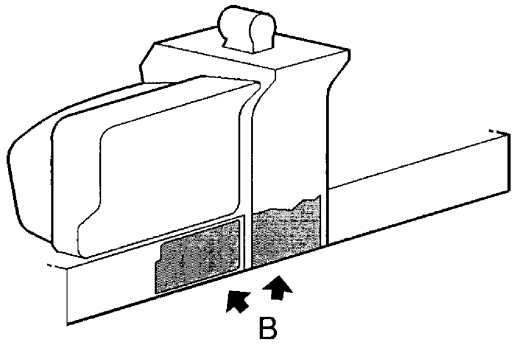


I4231000AAAAYZI4102

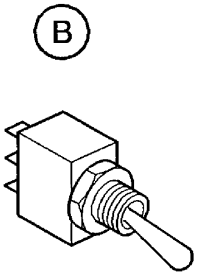
COM 1 installation - Identification and location of components
Figure 3

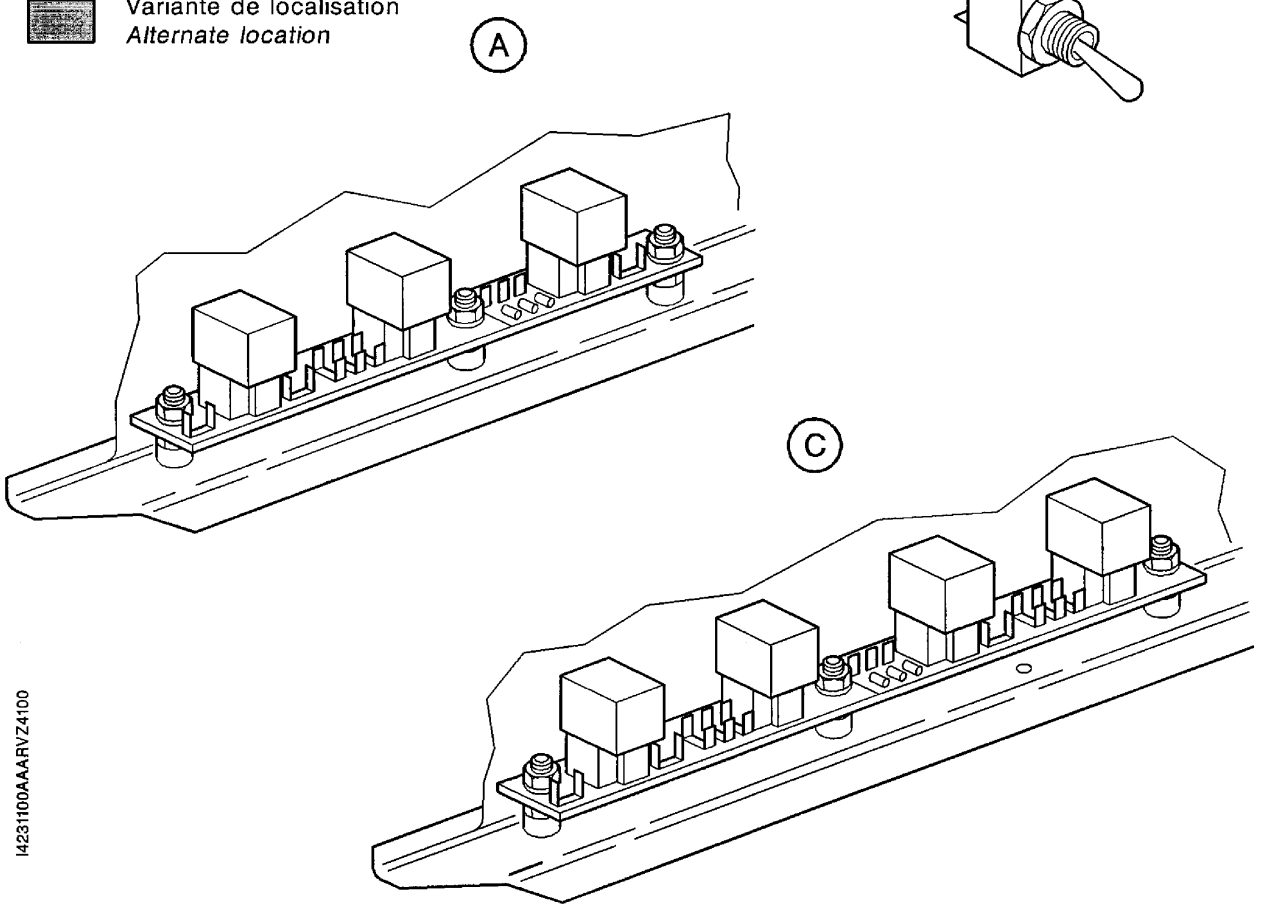


A - 3-relay master radio board
B - "RADIO MASTER" switch
C - 4-relay master radio board (Variant)



Variante de localisation
Alternate location





I4231100AAARVZ4100

COM 1 installation - Identification and location of components
Figure 4

COM 1 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL

The optional radiocommunication COM 1 installation allows radio transmissions necessary for air navigation.

The installation consists of :

- the A78 COMM./VOR-ILS/GPS transceiver,
- the E31 antenna,
- the radio master relays,
- the S120 radio master switch.

For the description of navigation function of the A78 COMM./VOR-ILS/GPS transceiver - refer to 34-51-00.

For the description of GPS function of the A78 COMM./VOR-ILS/GPS transceiver - refer to 34-57-00.

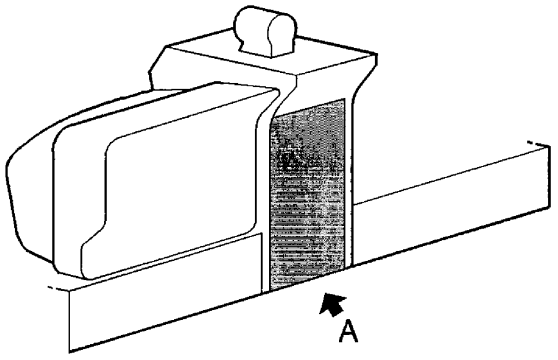
The installation also uses A50 audio control panel - refer to 23-11-00.

It is electrically supplied by "BUS 1" and "BUS 3" bars.

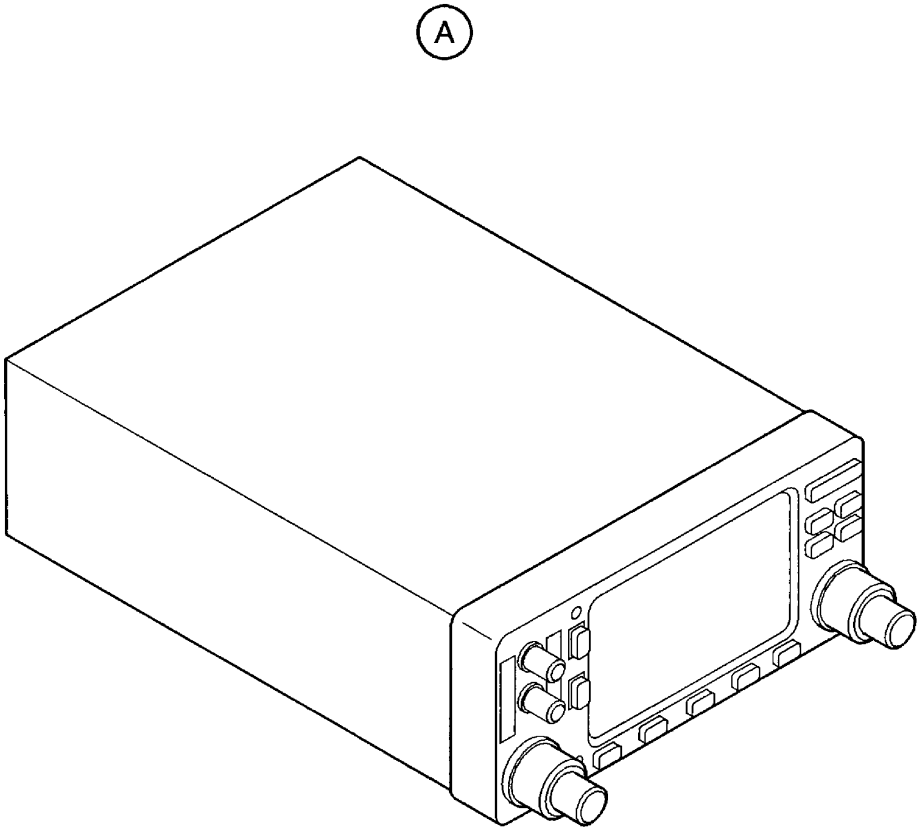
2. LOCATION (Figures 1 and 2)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A78 COMM./VOR-ILS/GPS transceiver	1	251C	/	23-10-00
E31 antenna	1	220	/	23-12-02
Radio master relays	4	230	/	23-12-06
S120 radio master switch	1	251C or 254L	/	23-12-00
Circuit breakers : - CB 86 "COM 1" - CB 60 "RM SWITCH "	 1 1	 PL1 PL1	 / /	 WM WM

A - A78 COMM./VOR-ILS/GPS transceiver

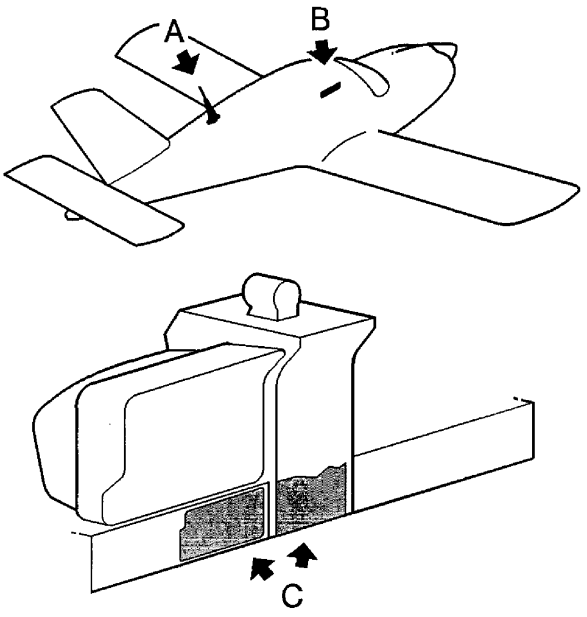


Variante de localisation
Alternate location



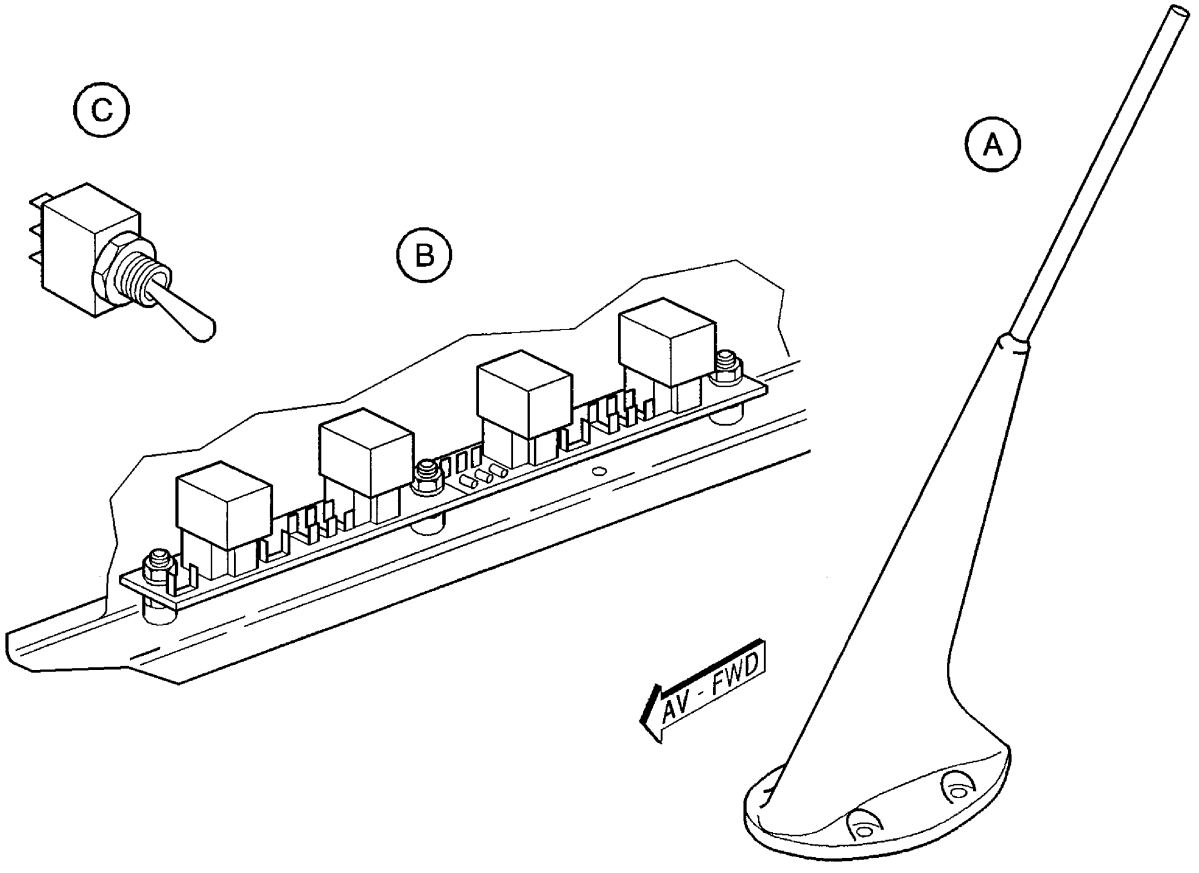
I423120OAAARVZ4000

COM 1 installation – Identification and location of components
Figure 1



A - E31 antenna
B - U15 printed circuit (radio master relays)
C - Radio master switch

Variante de localisation
Alternate location



I4231100AAARVZ4200

COM 1 installation – Identification and location of components
Figure 2

3. DESCRIPTION

A. A78 COMM./VOR-ILS/GPS transceiver (Figure 3)

The COMM./VOR-ILS/GPS transceiver enables air-to-ground or air-to-air communications within the 118.00 MHz to 136.975 MHz frequency range.

The COMM./VOR-ILS/GPS transceiver is a rectangular box installed in an attachment rack. Connections are made through three electrical connectors and four antenna connectors located on the box rear face.

For communication function, the equipment panel front face includes :

- A digital display (1) subdivided in three main windows. The COMM. function window (3) is located in the top left part of the display. This window displays the frequency being used (active frequency) and the window below displays the standby frequency,
- ".C" button (5) enables equipment energization, audio level control and squelch control,
- "C<->" pushbutton (4) is used to transfer the standby frequency in active frequency and vice versa,
- two concentric knobs (2) are used to modify standby frequency when the cursor function is enabled. If necessary, push momentarily the inner concentric knob in to activate cursor function.

COMM./VOR-ILS/GPS transceiver is electrically supplied by "BUS 1" bar via a radio master relay. It is protected by CB 86 "COM 1" circuit breaker.

COMM./VOR-ILS/GPS transceiver is mounted on PL30 radio rack.

B. E31 Antenna

The E31 antenna is a vertical polarization aerial, with a 50-ohm impedance intended for omni-directional transmission and reception of signals within 118 to 136.975 MHz frequency band.

The E31 antenna ensures the propagation and the reception of data-conveying electromagnetic waves.

The E31 antenna is mounted on top of the fuselage at the rear of C6 frame.

C. Radio master relays

Radio master relays enable all radiocommunication and radionavigation systems mounted on PL30 radio rack to be electrically supplied.

A radio master switch controls relay operation.

When the radio master switch is set to "ON", the radiocommunication and radionavigation systems are electrically supplied via the de-energization contacts of relays.

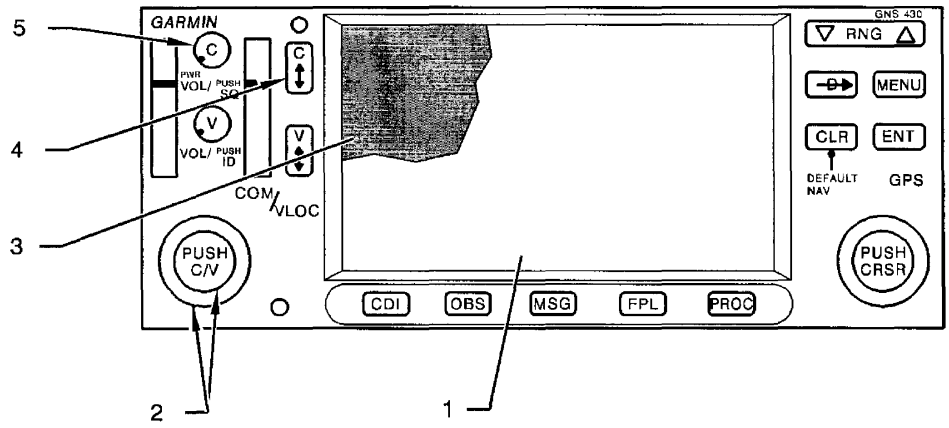
When the radio master switch is set to "OFF", or during the engine starting phase, a voltage is applied to the relay coils. The switching of the relay contacts interrupts the electrical power supplied to the systems.

Radio master relays are mounted on a U15 printed circuit, located on the L.H. side forward of PL1 circuit breaker panel.

The radio master switch is located on PL30 radio rack or in variant on the L.H. panel strip of the instrument panel.

Radio master relays are electrically supplied by "BUS 3" bar and protected by CB 60 "RM SWITCH" circuit breaker.

1 - Digital display
2 - Concentric knobs
3 - COMM display window
4 - "C<->" pushbutton
5 - ".C" button



I4231200AAARVZ4100

COM 1 installation – A78 COMM./VOR-ILS/GPS transceiver
Figure 3

4. OPERATION (Figure 4)

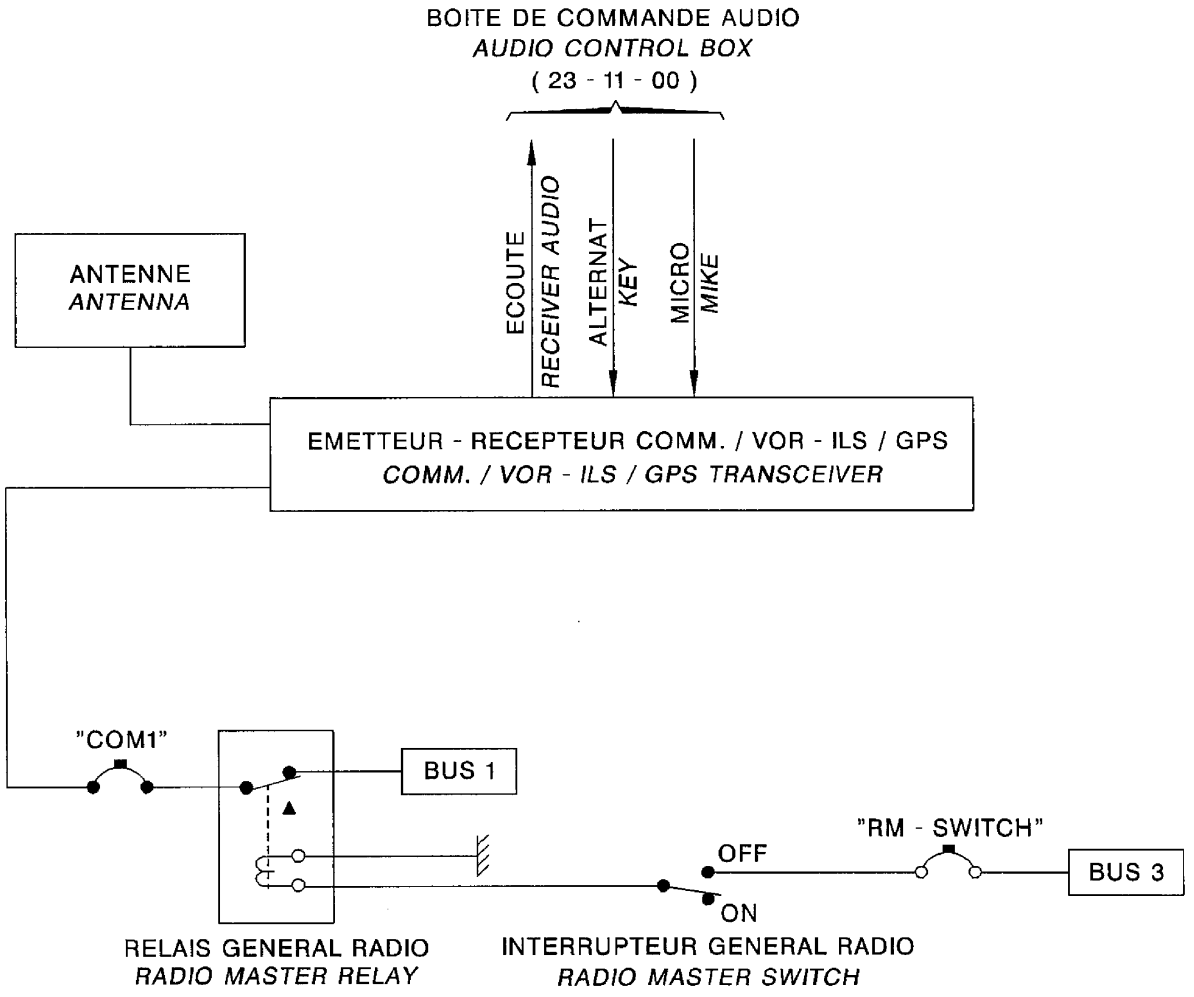
The radio master switch controls the energization of all the radio NAV and radio COM systems.

Electrical power supply to radiocommunication and radionavigation systems is automatically interrupted during the engine starting phase.

In reception mode, COMM./VOR-ILS/GPS A78 transceiver receives the signals detected by the antenna. Once the useful signal of the carrier wave has been extracted, an audio signal provided by the transceiver is applied at the input of A50 audio control panel. The position of the headset and/or loudspeaker selection buttons assigned to COM 1 (on A50 audio control panel) determines the application of the audio signal, once the latter has been adapted and amplified, to the loudspeaker and / or the headsets.

Press and hold transceiver "C<->" pushbutton to select directly the 121.500 MHz emergency frequency as active frequency.

In transmission mode, the function selector of A50 audio control panel enables to connect the push-to-talk and microphone lines to the A78 COMM./VOR-ILS/GPS transceiver inputs. Switching to transmission mode can therefore be obtained either by the push-to-talk switches located on the control wheels, or by the hand microphone control button. Actuating the push-to-talk switch triggers the transmission mode of the transceiver. A modulated VHF signal is transmitted in all directions by the antenna.



COM 1 installation – Wiring diagram
Figure 4

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COM 1 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL (Figure 1)

The optional radiocommunication COM 1 installation allows radio transmissions necessary for air navigation.

The installation consists of :

- the A51 VHF NAV / COMM. transceiver,
- the E31 antenna,
- the radio master relays,
- the S120 radio master switch.

For the description of navigation function of the A51 VHF NAV / COMM. transceiver - refer to 34-51-00.

The installation also uses A50 audio control panel - refer to 23-11-00.

It is electrically supplied by "BUS 1" and "BUS 3" bars.

2. LOCATION (Figures 2 and 3)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A51 VHF NAV / COMM. transceiver	1	251C	/	23-10-00
E31 antenna	1	220	/	23-12-02
Radio master relays	4	230	/	23-12-06
S120 radio master switch	1	251C or 254L	/	23-12-00
Circuit breakers : - CB 86 "NAV / COM 1" - CB 60 "RM SWITCH "	 1 1	 PL1 PL1	 / /	 WM WM

3. OPERATION

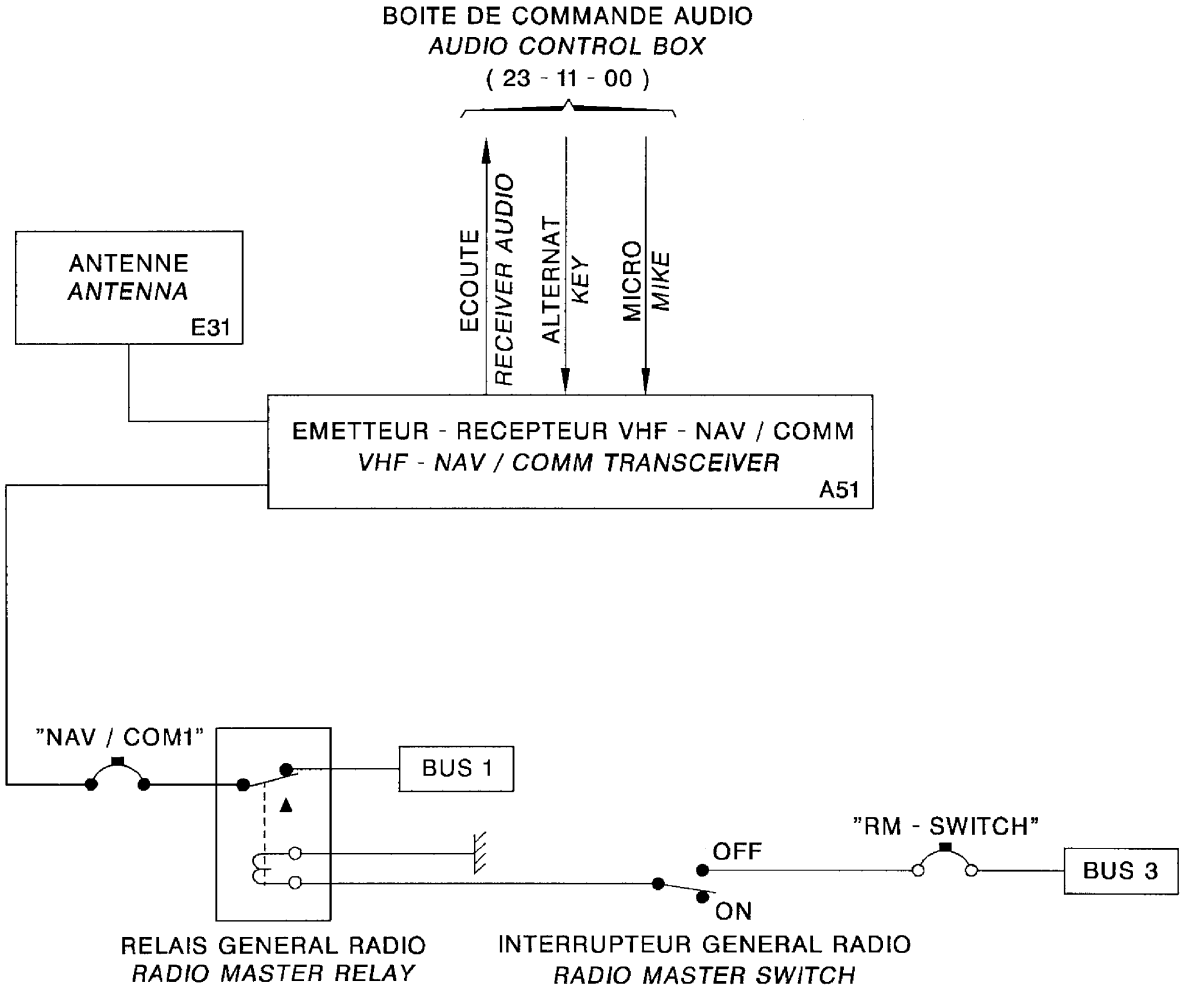
A. A51 VHF NAV/COMM. transceiver (Figure 4)

The VHF NAV / COMM transceiver enables air-to-ground or air-to-air communications within the 118.00 MHz to 136.9916 MHz frequency range.

It has the capability of programming up to 32 memory channel frequencies for later recall.

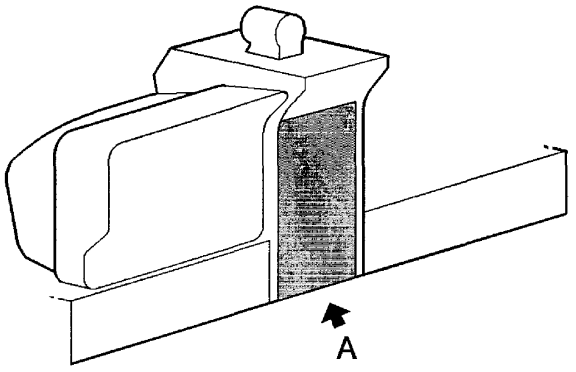
The L.H. side of the front panel includes all the controls necessary for equipment operation in communication mode as well as the display. The front panel consists of :

- a COMM. digital display unit subdivided in two windows. The left window displays the active frequency and the right "STBY" window displays the programmed frequency or standby frequency. "T" annunciation is displayed between the two windows when the VHF NAV/COMM transceiver is in transmission mode,

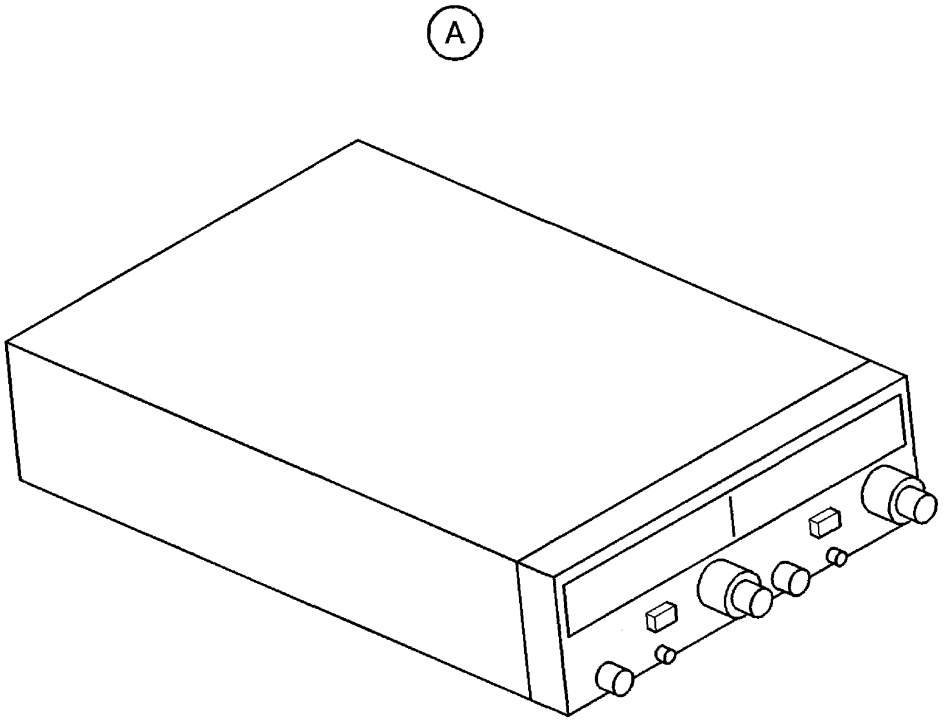


COM 1 installation - Wiring diagram
Figure 1

A - A51 VHF NAV/COMM. transceiver

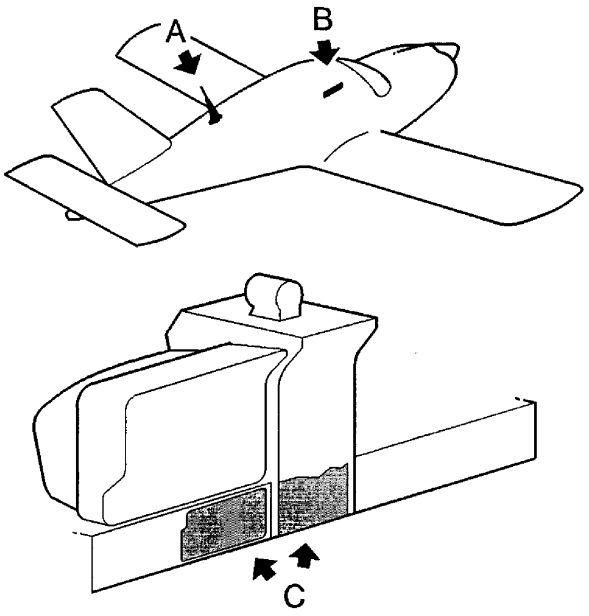


Variante de localisation
Alternate location



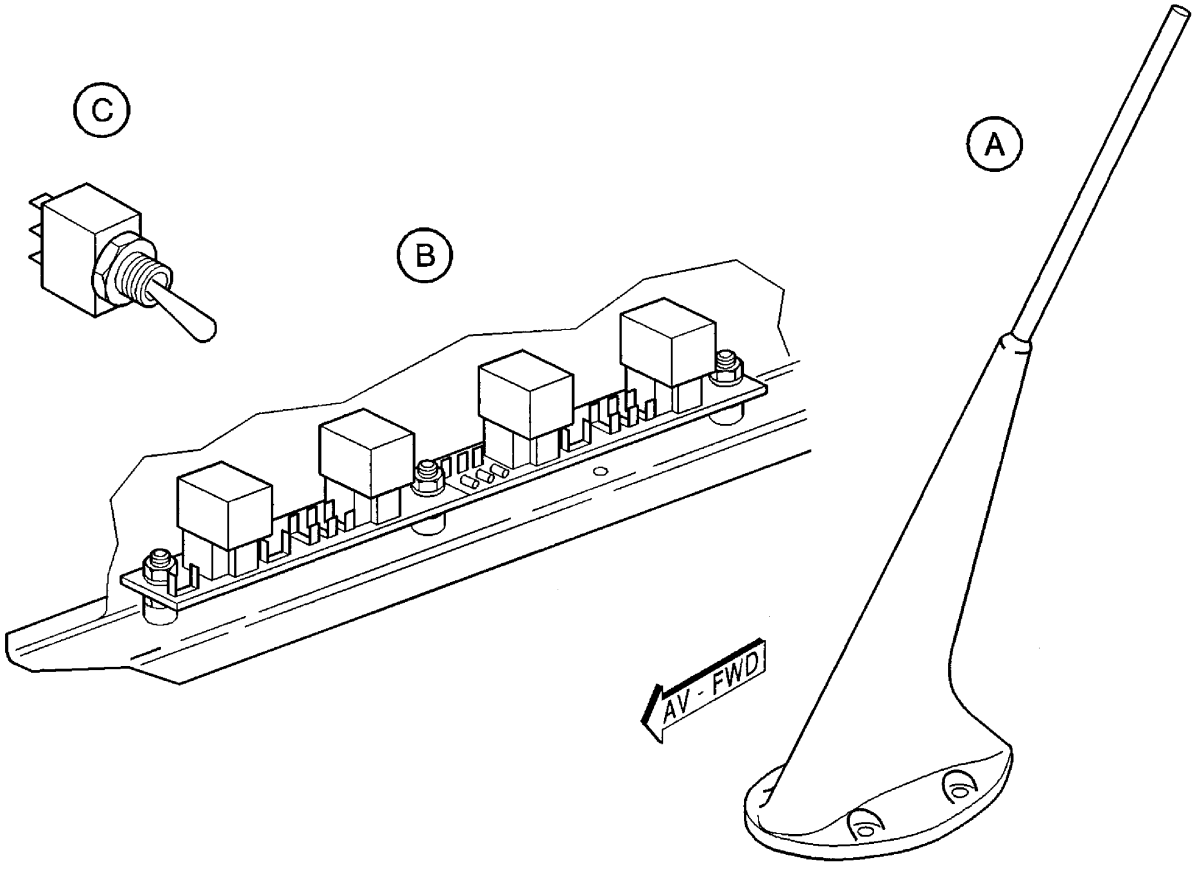
I4231200AAASVZ4000

COM 1 installation - Identification and location of components
Figure 2



A - E31 antenna
B - U15 printed circuit (radio master relays)
C - Radio master switch

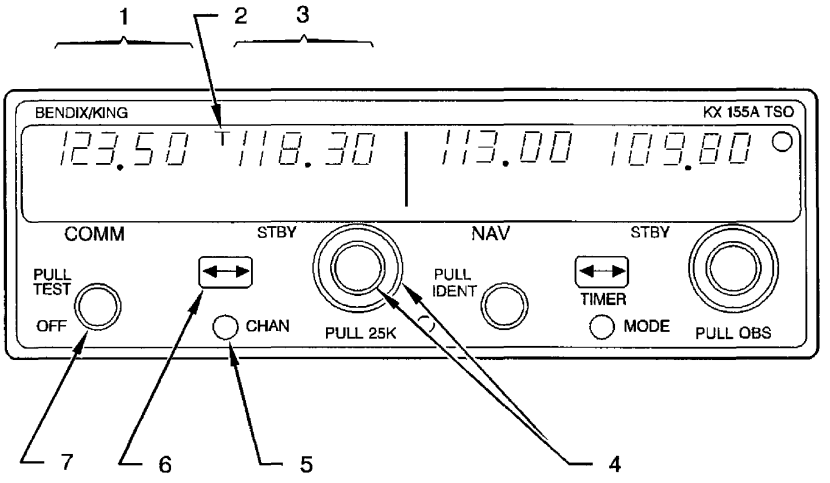
Variante de localisation
Alternate location



I4231100AAARVZ4200

COM 1 installation - Identification and location of components
Figure 3

1 - Active frequency window
2 - "T" annunciation (transmission mode)
3 - "STBY" window, standby frequency
4 - Concentric knobs
5 - "CHAN" button
6 - "↔" pushbutton
7 - "OFF-PULL TEST" button



I4231200AAASVZ4201

COM 1 installation – A51 VHF NAV/ COMM. transceiver
Figure 4

- two concentric knobs are used to select the active frequency or standby frequency or data entry according to the selected mode. The outer knob enables to increase or decrease the frequency in increments of 1 MHz.

  KX 155A, 25 KHz version

  the inner knob, when pushed in, increases or decreases the frequency in increments of 50 KHz and, when pulled out, in increments of 25 KHz.

  KX 155A, 8.33 KHz version

  the inner knob, when pushed in, increases or decreases the frequency in increments of 25 KHz and, when pulled out, in increments of 8.33 KHz. Refer to Table 1 for correspondence between the displayed frequency and the operating frequency.

- a "↔" pushbutton for COM frequency transfer, which enables the frequency displayed in the "USE" window to flip-flop with the frequency displayed in the "STBY" window and vice versa. When pushed in more than two seconds, it also enables to control directly the active frequency via the concentric knobs (if you push but do not hold the pushbutton in, the active and standby frequency display mode is reactivated).
- a "OFF / PULL TEST" knob to turn on the equipment and to adjust the audio level. It also controls, when pushed in, the automatic squelch.
- a "CHAN" button which enables, when pushed in but not held, to enter the channel mode used to recall preset frequencies stored in memory (concentric knobs enable to select the channel). When it is pushed in more than two seconds, it also enables to enter the frequency programming mode (channel mode). When the channel mode is selected, the two concentric knobs are used to select the channel number and, when the "↔" push-button is pushed in but not held, to select the associated frequency.

The VHF NAV/COMM transceiver is electrically supplied by "BUS 1" bar via a master radio relay and protected by CB 86 "NAV / COM 1" circuit breaker.

The VHF NAV/COMM transceiver is mounted on the radio rack.

Displayed frequency	Operating frequency (MHz)	Receiver selectivity
XXX.000	XXX.0000	25 KHz
XXX.005	XXX.0000	8.33 KHz
XXX.010	XXX.0083	8.33 KHz
XXX.015	XXX.0166	8.33 KHz
XXX.025	XXX.0250	25 KHz
XXX.030	XXX.0250	8.33 KHz
XXX.035	XXX.0333	8.33 KHz
XXX.040	XXX.0416	8.33 KHz
XXX.050	XXX.0500	25 KHz
XXX.055	XXX.0500	8.33 KHz
XXX.060	XXX.0583	8.33 KHz
XXX.065	XXX.0666	8.33 KHz
XXX.075	XXX.0750	25 KHz

Displayed frequency	Operating frequency (MHz)	Receiver selectivity
XXX.080	XXX.0750	8.33 KHz
XXX.085	XXX.0833	8.33 KHz
XXX.090	XXX.0916	8.33 KHz

Displayed frequency / Operating frequency correspondence
Table 1 – KX 155A, 8.33 KHz version

B. E31 antenna

The antenna is a vertical polarization aerial, with a 50-ohm impedance intended for omni-directional transmission and reception of signals within 118 MHz to 136.975 MHz frequency band.

Pre-MOD. 151

The whip type antenna ensures the propagation and the reception of data-conveying electromagnetic waves. It can be replaced by an optional faired antenna.

Post-MOD. 151

The faired antenna ensures the propagation and the reception of data-conveying electromagnetic waves.

All

The antenna is mounted on top of the fuselage between the cabin access doors.

C. Radio master relays

Radio master relays enable all radiocommunication and radionavigation systems mounted on PL30 radio rack to be electrically supplied.

A radio master switch controls relay operation.

When the radio master switch is set to "ON", the radiocommunication and radionavigation systems are electrically supplied via the de-energization contacts of relays.

When the radio master switch is set to "OFF", or during the engine starting phase, a voltage is applied to the relay coils. The switching of the relay contacts interrupts the electrical power supplied to the systems.

Radio master relays are mounted on a U15 printed circuit, located on the L.H. side forward of PL1 circuit breaker panel.

The radio master switch is located on PL30 radio rack or in variant on the L.H. panel strip of the instrument panel.

Radio master relays are electrically supplied by "BUS 3" bar and protected by CB 60 "RM SWITCH" circuit breaker.

4. OPERATION

The radio master switch controls the energization of all the radionavigation and radiocommunication systems.

Electrical power supply to radiocommunication and radionavigation systems is automatically interrupted during the engine starting phase.

In reception mode, VHF NAV/COMM. transceiver receives the signals detected by the antenna. Once the useful signal of the carrier wave has been extracted, an audio signal provided by the transceiver is applied at the input of A50 audio control panel. The position of the headset and/or loudspeaker selection buttons assigned to COM 1 installation (on A50 audio control panel) determines the application of the audio signal, once the latter has been adapted and amplified, to the loudspeaker and / or the headsets.

In transmission mode, the function selector of A50 audio control panel enables to connect the push-to-talk and microphone lines to the VHF NAV/COMM. transceiver inputs. Switching to transmission mode can therefore be obtained either by the push-to-talk switches located on the control wheels, or by the hand microphone control button. Actuating the push-to-talk switch triggers the transmission mode of the transceiver. A modulated VHF signal is transmitted in all directions by the antenna.

COM 1 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL

The optional radiocommunication COM 1 installation allows radio transmissions necessary for air navigation.

The installation consists of :

- the A78 COMM./VOR-ILS/GPS transceiver,
- the E31 antenna,
- the radio master relays,
- the S120 radio master switch.

With "Ground Clearance"

- "Ground Clearance" assy consists of :
  - . two K201, K202 relays,
  - . a K200 switch.

All

For the description of navigation function of the A78 COMM./VOR-ILS/GPS transceiver, refer to 34-51-00.

For the description of GPS function of the A78 COMM./VOR-ILS/GPS transceiver, refer to 34-57-00.

The installation also uses A50 audio control panel - refer to 23-11-00.

Without "Ground Clearance"

The installation is electrically supplied by "BUS 1" and "BUS 3" bars.

With "Ground Clearance"

The installation is electrically supplied by "BUS 1" bar or by the battery and "BUS 3" bar.

2. LOCATION (Figures 1 and 2)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A78 COMM./VOR-ILS/GPS transceiver	1	251C	/	23-10-00
E31 antenna	1	220	/	23-12-02
Radio master relays	4	230	/	23-12-06
S120 radio master switch	1	251C or 254L	/	23-12-00
K201 relay (option)	1	230	211R	23-12-00
K202 relay (option)	1	230	211R	23-12-00

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
K200 switch (option)	1	251C	/	23-12-00
Circuit breakers : - CB 86 "COM 1" - CB 60 "RM SWITCH " - CB 16 (option)	 1 1 1	 PL1 PL1 210	 / / 218A	 WM WM WM

3. DESCRIPTION

A. A78 COMM./VOR-ILS/GPS transceiver (Figure 3)

The A78 COMM./VOR-ILS/GPS transceiver enables air-to-ground or air-to-air communications within the 118.00 MHz to 136.975 MHz frequency range.

The COMM./VOR-ILS/GPS transceiver is a rectangular box installed in an attachment rack. Connections are made through four electrical connectors and four antenna connectors located on the box rear face.

For communication function, the equipment panel front face includes :

- A digital display (1) subdivided in three main windows. The COMM. function display window (3) is located in the top left part of the display. This window displays the frequency being used (active frequency) and the window below displays the standby frequency,
- ".C" button (4) enables equipment energization, audio level control and squelch control,
- "C<->" pushbutton (5) is used to transfer the standby frequency in active frequency and vice versa,
- two concentric knobs (2) are used to modify standby frequency when the cursor function is enabled. If necessary, push momentarily the inner concentric knob in to activate cursor function.

Without "Ground Clearance"

A78 COMM./VOR-ILS/GPS transceiver is electrically supplied by "BUS 1" bar via a radio master relay. It is protected by CB 86 "COM 1" circuit breaker.

With "Ground Clearance"

In normal operation, A78 COMM./VOR-ILS/GPS transceiver is electrically supplied by "BUS 1" bar via a radio master relay and via K201 relay contacts in rest position. It is protected by CB 86 "COM 1" circuit breaker.

When "Ground Clearance" function is actuated, A78 COMM./VOR-ILS/GPS is electrically supplied by the battery via K201 relay contact in ON position. The installation is then protected by CB 16 circuit breaker. The circuit breaker is attached to frame No. 4 near starter relay.

All

A78 COMM./VOR-ILS/GPS transceiver is mounted on PL30 radio rack.

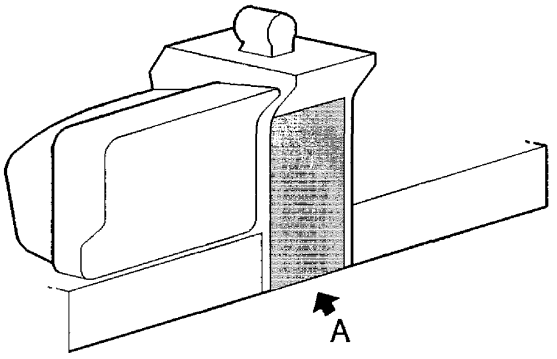
B. E31 Antenna

The E31 antenna is a vertical polarization aerial, with a 50-ohm impedance intended for omni-directional transmission and reception of signals within 118 to 136.975 MHz frequency band.

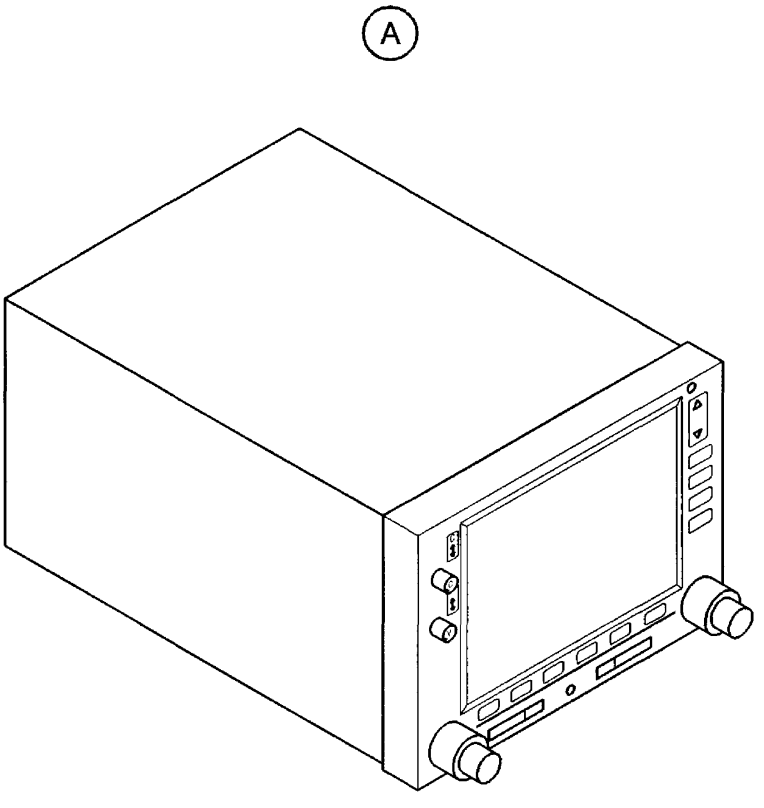
The E31 antenna ensures the propagation and the reception of data-conveying electromagnetic waves.

The E31 antenna is mounted on top of the fuselage at the rear of C6 frame.

A - A78 COMM./VOR-ILS/GPS transceiver



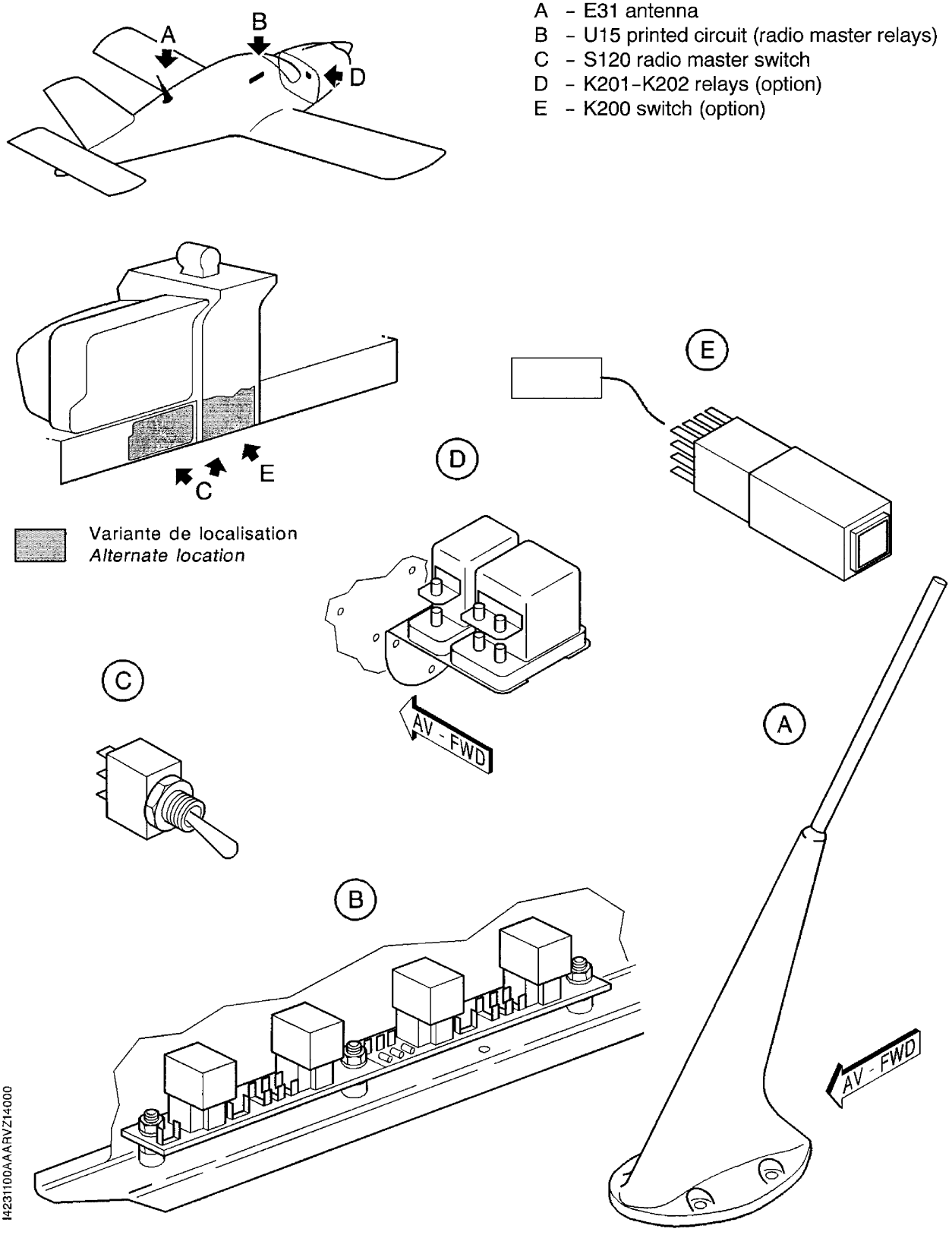
Variante de localisation
Alternate location



I4345700AADAVZ4000

COM 1 installation – Identification and location of components
Figure 1

A - E31 antenna
B - U15 printed circuit (radio master relays)
C - S120 radio master switch
D - K201-K202 relays (option)
E - K200 switch (option)



COM 1 installation – Identification and location of components
Figure 2

C. Radio master relays

Radio master relays enable all radiocommunication and radionavigation systems mounted on PL30 radio rack to be electrically supplied.

A radio master switch controls relay operation.

When the radio master switch is set to "ON", the radiocommunication and radionavigation systems are electrically supplied via the de-energization contacts of relays.

When the radio master switch is set to "OFF", or during the engine starting phase, a voltage is applied to the relay coils. The switching of the relay contacts interrupts the electrical power supplied to the systems.

Radio master relays are mounted on a U15 printed circuit, located on the L.H. side forward of PL1 circuit breaker panel.

The radio master switch is located on PL30 radio rack or in variant on the L.H. panel strip of the instrument panel.

Radio master relays are electrically supplied by "BUS 3" bar and protected by CB 60 "RM SWITCH" circuit breaker.

D. "Ground Clearance" assy (option)

"Ground Clearance" assy allows to supply COM 1, NAV 1 installations and GPS1 system when main switch is open.

The components which ensure function are :

- K201 and K202 relays positioned on firewall R.H. side in cabin area.
- K200 switch located at the lower part of PL30 radio rack.

K202 relay is electrically supplied by "BUS 3" bar and is protected by CB 60 "R.M SWITCH" circuit breaker.

K201 relay is electrically supplied by the battery via contacts of K202 relay and K200 switch. It is protected by CB 16 circuit breaker attached to frame No. 4 near starter relay.

4. OPERATION (Figures 4 and 4A)

A. COM1 assy

The radio master switch controls the energization of all the radio NAV and radio COM systems.

Electrical power supply to radiocommunication and radionavigation systems is automatically interrupted during the engine starting phase.

In reception mode, A78 COMM./VOR-ILS/GPS transceiver receives the signals detected by the antenna. Once the useful signal of the carrier wave has been extracted, an audio signal provided by the transceiver is applied at the input of A50 audio control panel. The position of the headset and/or loudspeaker selection buttons assigned to COM 1 (on A50 audio control panel) determines the application of the audio signal, once the latter has been adapted and amplified, to the loudspeaker and / or the headsets.

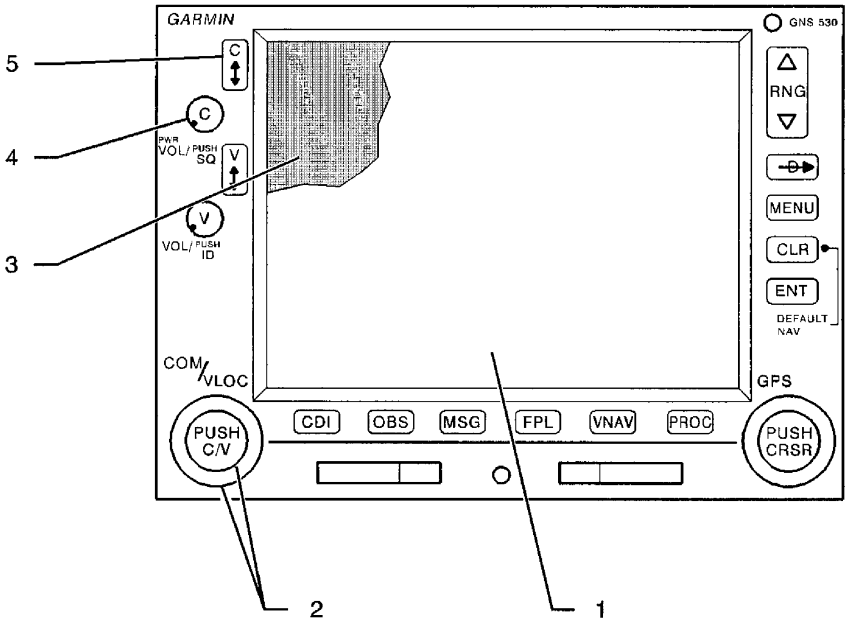
Press and hold A78 COMM./VOR-ILS/GPS transceiver "C<->" pushbutton to select directly the 121.500 MHz emergency frequency as active frequency.

In transmission mode, the function selector of A50 audio control panel enables to connect the push-to-talk and microphone lines to the A78 COMM./VOR-ILS/GPS transceiver inputs. Switching to transmission mode can therefore be obtained either by the push-to-talk switches located on the control wheels, or by the hand microphone control button. Actuating the push-to-talk switch triggers the transmission mode of the transceiver. A modulated VHF signal is transmitted in all directions by the antenna.

B. "Ground Clearance" function

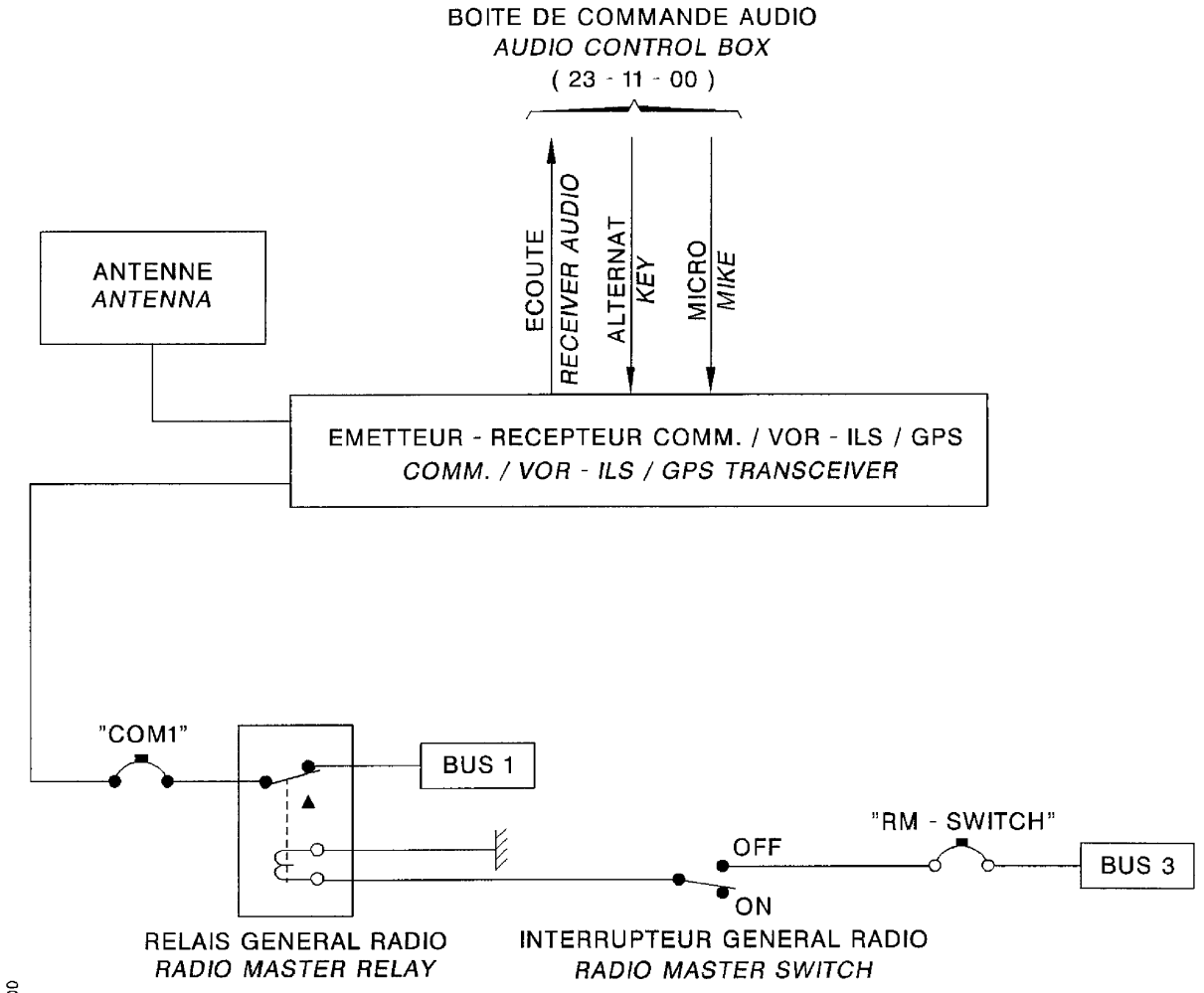
When the main switch is open, a momentary action on K200 switch controls "Ground Clearance" function. The K201 relay connects electric power supply lines of COM1, NAV1 installations and GPS1 system and of audio control panel directly to the battery. The indicator of the K200 switch illuminates to indicate that the function is active. The K202 relay de-activates "Ground Clearance" function when the main switch is closed.

1 - Digital display
2 - Concentric knobs
3 - Display window
4 - ".C" button
5 - "C<->" pushbutton

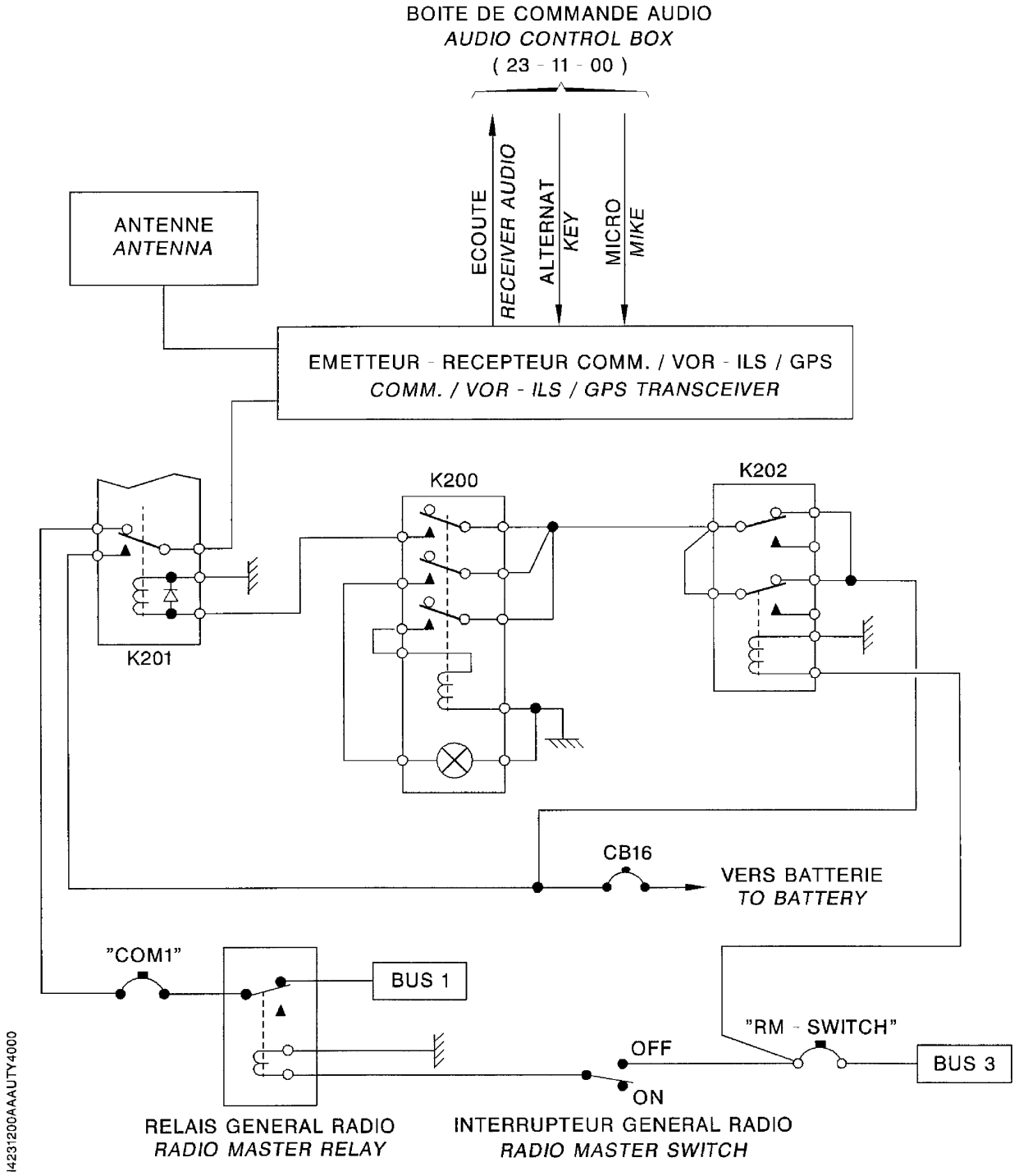


I4345100AAAXTY4100

COM 1 installation – A78 COMM./VOR-ILS/GPS transceiver
Figure 3



COM 1 installation – Wiring diagram
Figure 4 - Without "Ground Clearance"



COM 1 installation – Wiring diagram
Figure 4A - With "Ground Clearance"

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E31 ANTENNA

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - E31 ANTENNA (Figure 201)

A. Tools and consumable materials

- Sealant (TB 09-903)
- Plastic scraper
- Abrasive cloth (TB 05-916C)
- Cleaning agent (TB 11-912)
- Alodine (TB 13-002)
- Clean lintfree cloth

B. Removal of the antenna

1) Make sure the switch-breaker of the master switch is open.
2) If screws (2) are sealed, remove the sealant.
3) If a sealant bead is applied around the antenna, remove the sealant with a plastic scraper.
4) Open baggage compartment door 219 and remove compartment bottom door 242.
5) Disconnect connector (6).
6) Remove screws (2).
7) Remove E31 antenna (1) and gasket (3).
8) If the gasket (3) removed is a bonding gasket, retain it, otherwise discard the gasket.

   NOTE : A bonding gasket is characterized by the presence of metallic wires crossing right through the gasket.

9) Remove any sealant residues on the antenna and the fuselage.

C. Installation of the antenna

1) Make sure the switch-breaker of the master switch is open.
2) If the antenna was installed with a non-bonding gasket, perform the following operations
   a) Using a soft lead pencil, draw the contour of E31 antenna (1) on fuselage (5).
   b) Strip the fuselage area in contact with E31 antenna (1), at 0.01 in (2 mm) inside the contour drawn with the soft lead pencil.
   c) Clean the stripped area with a cloth moistened with cleaning agent (TB 11-912). Wipe with a dry cloth.
   d) Protect the stripped area with Alodine (TB 13-002).

3) Make sure bonding area (4) is clean. Clean the surface with a cloth moistened with cleaning agent (TB 11-912). Wipe with a dry cloth.

4) Position the retained bonding gasket (3) or a new bonding gasket - refer to the Illustrated Parts Catalog.

5) Position and secure E31 antenna (1) with screws (2).

6) Connect connector (6).

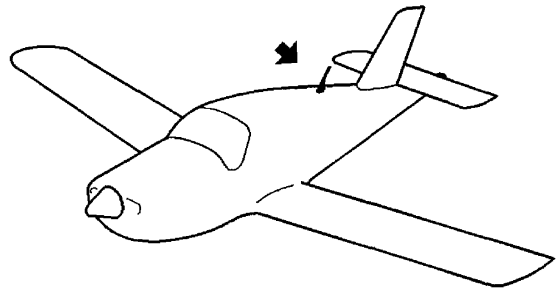
7) Make sure all the tools and materials are removed and the work area is clean and free from debris.

8) Install compartment bottom door 242 and close baggage compartment door 219.

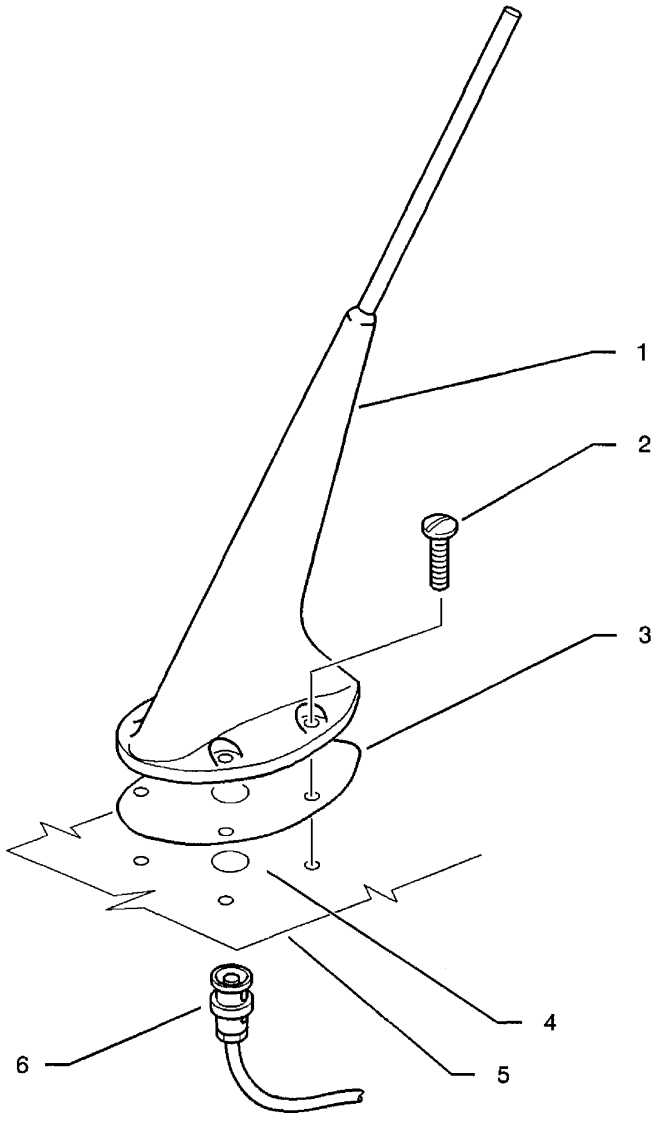
9) Apply a bead of sealant (TB 09-903) around the antenna / fuselage junction.

10) Seal the heads of screws (2) with sealant (TB 09-903).

11) Perform an operational test of COM 1 system.



1 - E31 antenna
2 - Screw
3 - Gasket
4 - Bonding area
5 - Fuselage
6 - Connector



I4231000AAAAYZ4102

E31 antenna - Removal / Installation
Figure 201

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RADIO MASTER RELAY U15 PRINTED CIRCUIT

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - RADIO MASTER RELAY U15 PRINTED CIRCUIT

A. Tools and consumable materials

None

B. Removal of the radio master relay U15 printed circuit (Figure 201)

1) Disconnect the battery - refer to 24-30-02.

2) If connected, disconnect the ground power unit - refer to 24-40-00.

3) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

4) Remove the L.H.front seat – refer to 25-11-00.

5) Remove circuit breaker panel attaching bolts. Disengage the panel.

CAUTION : MAKE SURE NOT TO PULL ELECTRICAL WIRING DURING REMOVAL OF UPHOLSTERING PANEL.

6) Remove side upholstering panel (1) No. 231L.

7) Remove insulation panel (8).

8) Unfold, if installed, insulator (7) to get access to attachments.

9) Remove locknuts (2) and insulating washers (3) and hold bolt (5) head. Discard locknuts (2).

10) Release printed circuit (6) from its attachments.

CAUTION : BEFORE ANY ACTION, MARK THE CONNECTION OF ALL CABLES CONNECTED TO THE PRINTED CIRCUIT.

11) Disconnect printed circuit cables.

12) Retain insulating washers (4).

13) If installed, retain insulator (7).

C. Installation of the radio master relay U15 printed circuit (Figure 201)

1) Make sure the battery is disconnected and that no external power supply is connected to the aircraft.

2) Connect the cables to printed circuit as marked during the removal procedure.

3) Position the insulator (7), if installed, on the printed circuit attachments.

4) Install insulating washers (4).

5) Install and secure printed circuit (6) with insulating washers (3) and new locknuts (2).

6) Make sure all the tools and materials are removed and the work area is clean and free from debris.

7) Fold insulator (7), if installed, as shown on the Figure.

8) Install insulation panel (8).

9) Install side upholstering panel (1) No. 231L.

10) Install the circuit breaker panel.

11) Install L.H. front seat - refer to 25-11-00.

12) Connect the battery - refer to 24-30-02.

13) Remove the warning sign prohibiting main switch-breaker operation.

14) Perform an operation test of the radio master relay printed circuit.

3. ADJUSTMENT / TEST – RADIO MASTER RELAY U15 PRINTED CIRCUIT

A. Tools and consumable materials

None

B. Test of the radio master relay U15 printed circuit

1) Park the aircraft on a clear and secure area.

2) Make sure the radio master switch is set to OFF.

3) Close main switch-breaker.

4) Make sure the radio equipment of the PL30 radio rack are de-energized.

NOTE : Make sure first that the ON/OFF control of each equipment is set to ON.

5) Set the radio master switch to ON.

6) Make sure the radio equipment of the PL30 radio rack are energized.

7) On the circuit breaker panel, open "RM SWITCH" circuit breaker.

8) Set the radio master switch to OFF and then to ON. Make sure the radio equipment are energized, whatever the position of the switch.

9) On the circuit breaker panel, close the "RM SWITCH" circuit breaker.

10) Make sure each radio equipment is connected, via the radio master relay printed circuit, to its related BUS bar – refer to 24-50-00, Distribution diagram - Electrical schematic.

NOTE : Open successively "BUS 1", "BUS 2" and "BUS 3" circuit breakers and identify the de-energized equipment.

11) Close, if necessary, "BUS 1", "BUS 2" and "BUS 3" circuit breakers.

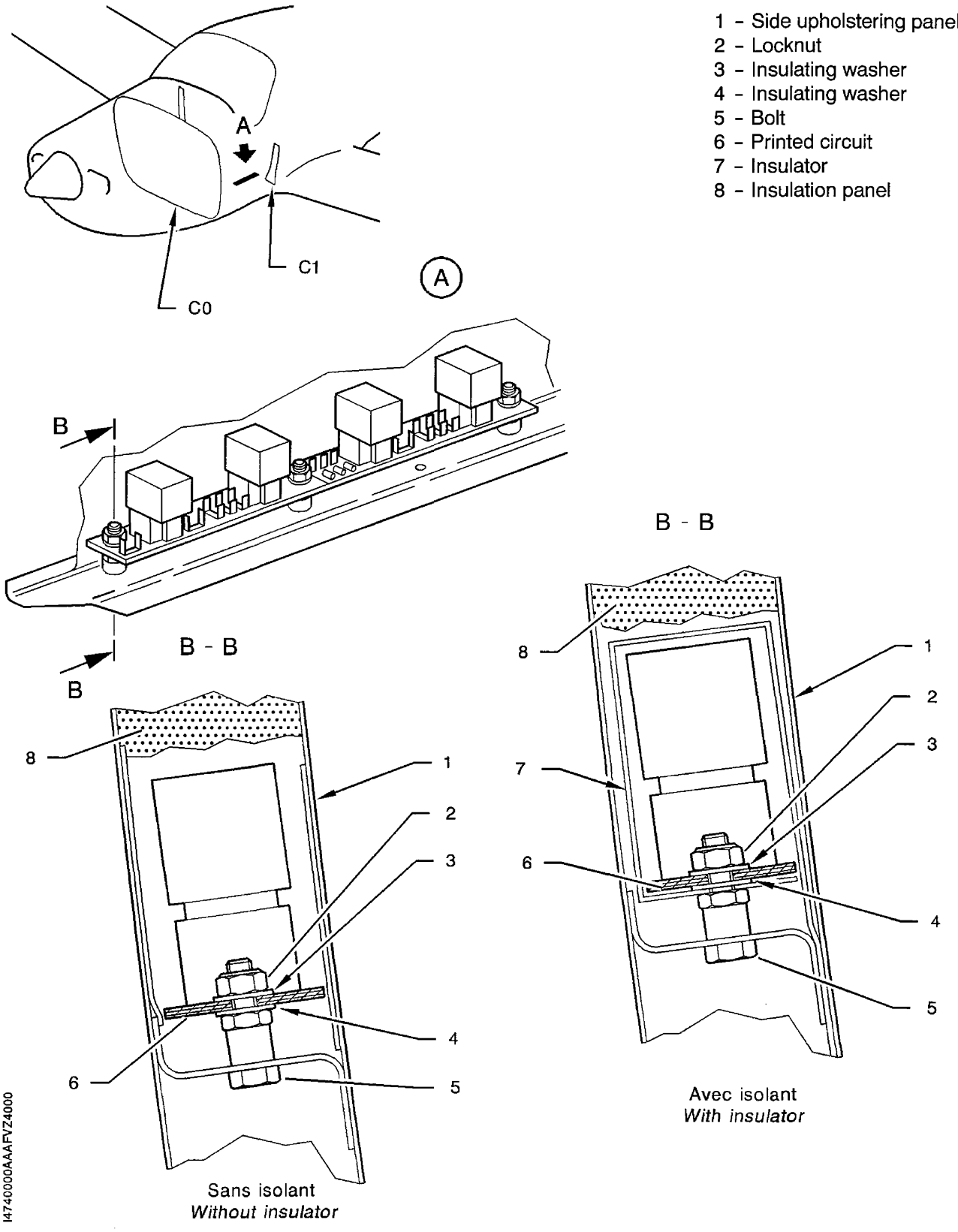
12) Make sure the radio master switch is set to ON.

13) Refer to safety procedure and start the engine. Make sure that during the starting phase, the radio equipment energization is automatically interrupted.

14) Shut down the engine.

15) Set radio master switch to OFF.

16) Open main switch-breaker.



Radio master relay U15 printed circuit – Removal /Installation
Figure 201

COM 2 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL (Figure 1)

The optional radiocommunication COM 2 installation allows radio transmissions necessary for air navigation.

The COM 2 installation includes :

- an A52 VHF-NAV / COMM transceiver,
- an E32 antenna.

The navigation part of the VHF-NAV / COMM transceiver is described in 34-52-00.

The installation also uses the A50 audio control box - refer to 23-11-00.

The COM 2 installation is electrically supplied by "BUS 3" bar.

2. LOCATION (Figures 2 and 3)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A52 VHF-NAV / COMM transceiver	1	251C	/	23-10-00
E32 antenna	1	210	241	23-13-02
Circuit breaker : - CB 88 "NAV / COM 2"	1	230	232L	WM

3. DESCRIPTION

A. A52 VHF NAV/COMM. transceiver (Figure 4)

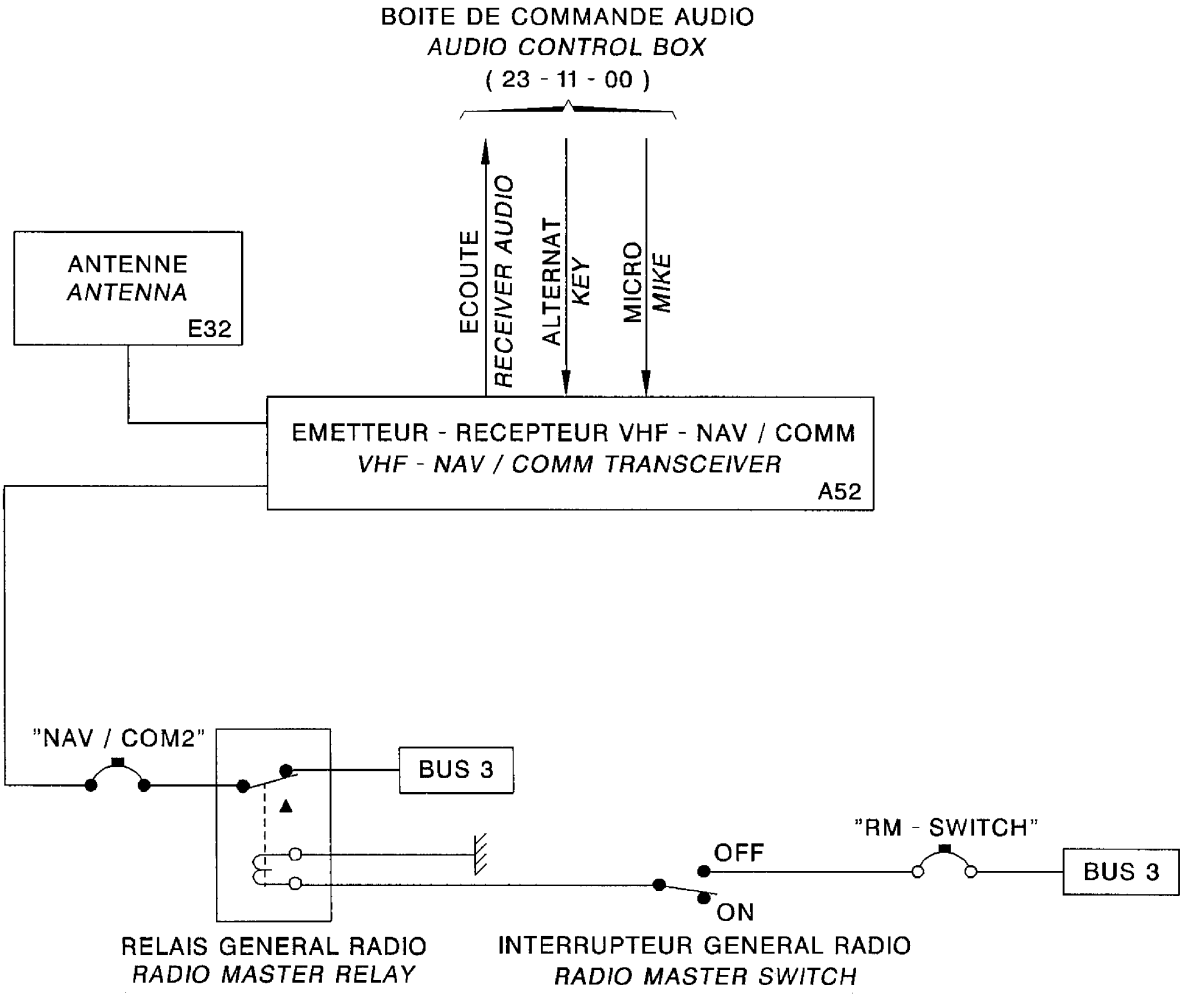
The VHF NAV / COMM transceiver enables air-to-ground or air-to-air communications within the 118.00 MHz to 136.9916 MHz frequency range.

Aircraft with KX 155A or KX 165A

It has the capability of programming up to 32 memory channel frequencies for later recall.

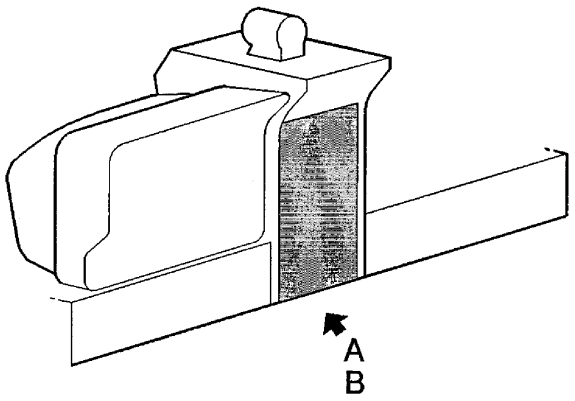
The L.H. side of the front panel includes all the controls necessary for equipment operation in communication mode as well as the display. The front panel consists of :

- a COMM. digital display unit subdivided in two windows. The left window displays the active frequency and the right "STBY" window displays the programmed frequency or standby frequency. "T" annunciation is displayed between the two windows when the VHF NAV/COMM transceiver is in transmission mode,



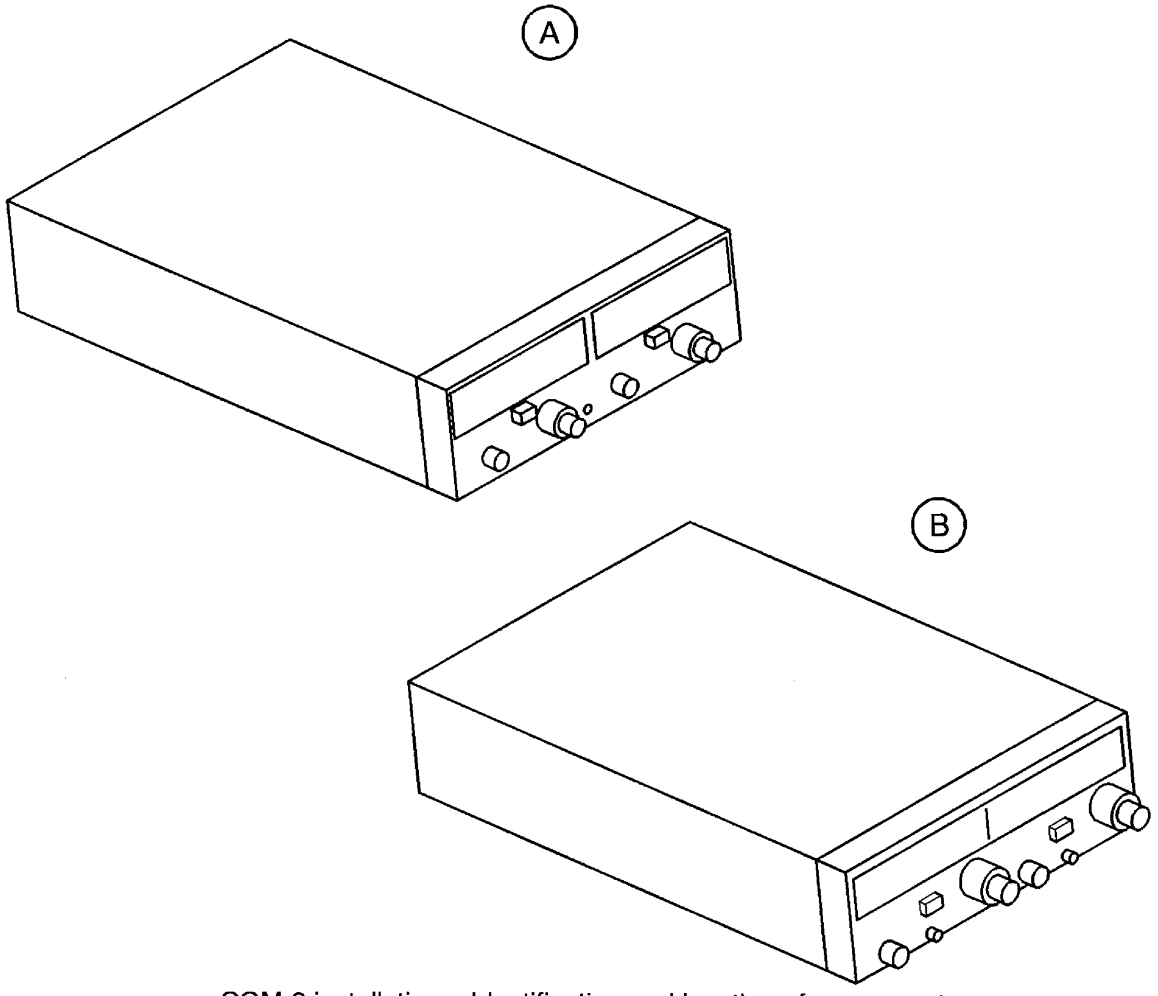
I4231200AAASVZ14000

COM 2 installation - Wiring diagram
Figure 1

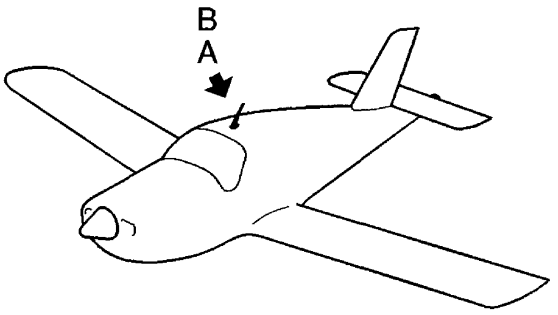


A - A52 VHF NAV/COMM. transceiver - KX 155 / KX 165
B - A52 VHF NAV/COMM. transceiver - KX 155A / KX165A

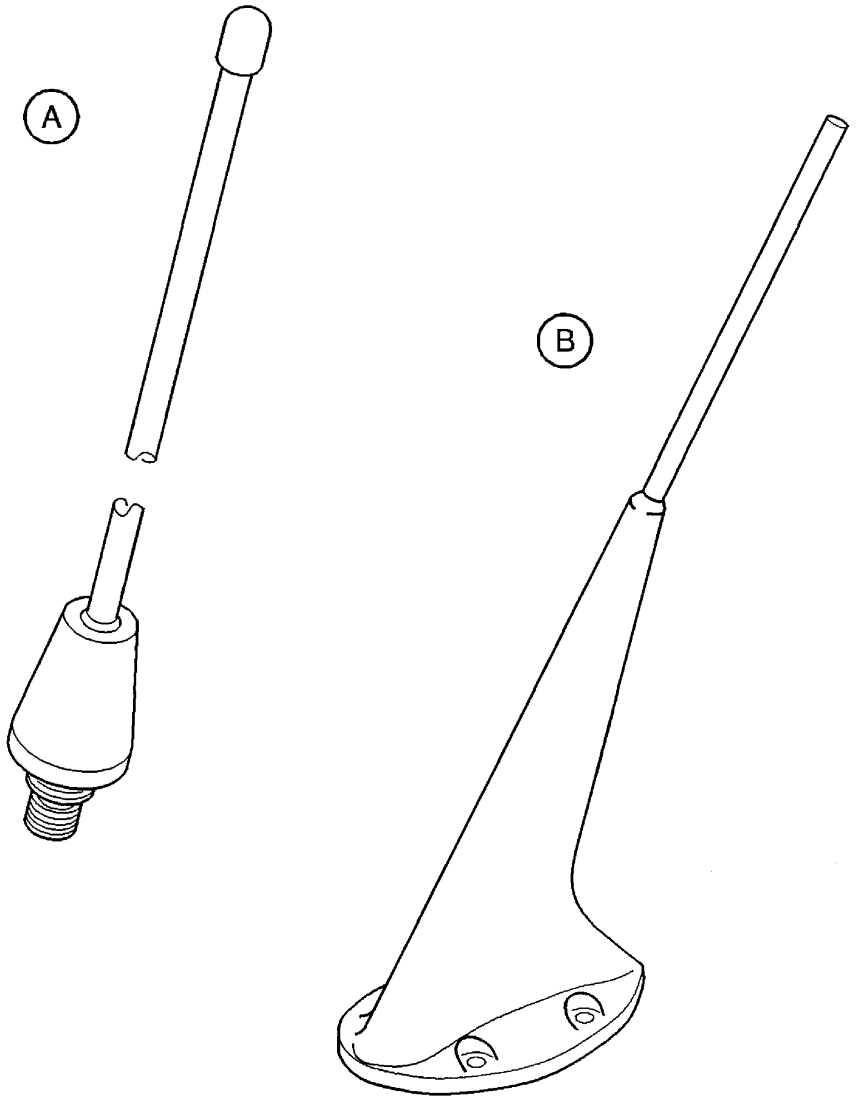
Variante de localisation
Alternate location



COM 2 installation - Identification and location of components
Figure 2



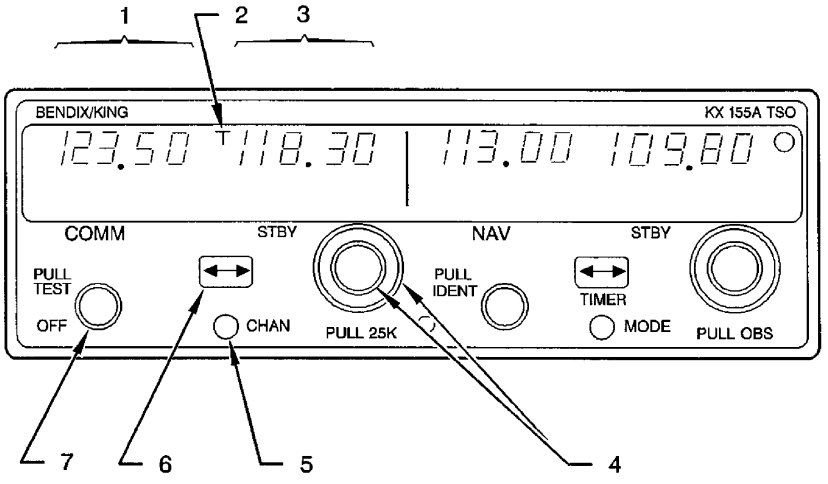
A - E32 antenna
B - E32 antenna (variant)



I4231000AAAAYZ24102

COM 2 installation - Identification and location of components
Figure 3

1 - Active frequency window
2 - "T" annunciation (transmission mode)
3 - "STBY" window, standby frequency
4 - Concentric knobs
5 - "CHAN" button
6 - "↔" frequency transfer pushbutton
7 - "OFF-PULL TEST" button



I4231200AAASVZ4201

COM 2 installation – A52 VHF NAV/ COMM. transceiver
Figure 4 - KX 155A / KX 165A

- two concentric knobs are used to select the active frequency or standby frequency or data entry according to the selected mode. The outer knob permits to increase or decrease the frequency in increments of 1 MHz.

  KX 155A / KX 165A, 25 KHz version

  the inner knob, when pushed in, increases or decreases the frequency in increments of 50 KHz and, when pulled out, in increments of 25 KHz.

  KX 155A / KX 165A, 8.33 KHz version

  the inner knob, when pushed in, increases or decreases the frequency in increments of 25 KHz and, when pulled out, in increments of 8.33 KHz. Refer to Table 1 for correspondence between the displayed frequency and the operating frequency.

- a "↔" pushbutton for COM frequency transfer, which enables the frequency displayed in the "USE" window to flip-flop with the frequency displayed in the "STBY" window and vice versa. When pushed in more than two seconds, it also enables to control directly the active frequency via the concentric knobs (if you push but do not hold the pushbutton in, the active and standby frequency display mode is reactivated).

- a "OFF / PULL TEST" knob to turn on the equipment and to adjust the audio level. It also controls, when pushed in, the automatic squelch.

- a "CHAN" button which enables, when pushed in but not held, to enter the channel mode used to recall preset frequencies stored in memory (concentric knobs enable to select the channel). When it is pushed in more than two seconds, it also enables to enter the frequency programming mode (channel mode). When the channel mode is selected, the two concentric knobs are used to select the channel number and, when the "↔" pushbutton is pushed in but not held, to select the associated frequency.

The VHF NAV/COMM transceiver is electrically supplied by "BUS 3" bar via a master radio relay and protected by CB 88 "NAV / COM 2" circuit breaker.

The VHF NAV/COMM transceiver is mounted on the radio rack.

Displayed frequency	Operating frequency (MHz)	Receiver selectivity
XXX.000	XXX.0000	25 KHz
XXX.005	XXX.0000	8.33 KHz
XXX.010	XXX.0083	8.33 KHz
XXX.015	XXX.0166	8.33 KHz
XXX.025	XXX.0250	25 KHz
XXX.030	XXX.0250	8.33 KHz
XXX.035	XXX.0333	8.33 KHz
XXX.040	XXX.0416	8.33 KHz
XXX.050	XXX.0500	25 KHz
XXX.055	XXX.0500	8.33 KHz
XXX.060	XXX.0583	8.33 KHz
XXX.065	XXX.0666	8.33 KHz

Displayed frequency	Operating frequency (MHz)	Receiver selectivity
XXX.075	XXX.0750	25 KHz
XXX.080	XXX.0750	8.33 KHz
XXX.085	XXX.0833	8.33 KHz
XXX.090	XXX.0916	8.33 KHz

Displayed frequency / Operating frequency correspondence
Table 1 – KX 155A KX 165A, 8.33 KHz version

B. E32 antenna

The antenna is a vertical polarization aerial, with a 50-ohm impedance intended for omni-directional transmission and reception of signals within 118 MHz to 136.975 MHz frequency band.

Pre-MOD. 151

The whip type antenna ensures the propagation and the reception of data-conveying electromagnetic waves. It can be replaced by an optional faired antenna.

Post-MOD. 151

The faired antenna ensures the propagation and the reception of data-conveying electromagnetic waves.

All

The antenna is mounted on top of the fuselage between the cabin access doors.

4. OPERATION

The radio master switch controls the energization of all the radionavigation and radiocommunication systems.

Electrical power supply to radiocommunication and radionavigation systems is automatically interrupted during the engine starting phase.

In reception mode, VHF NAV/COMM. transceiver receives the signals detected by the antenna. Once the useful signal of the carrier wave has been extracted, an audio signal provided by the transceiver is applied at the input of A50 audio control panel. The position of the headset and/or loudspeaker selection buttons assigned to COM 2 installation (on A50 audio control panel) determines the application of the audio signal, once the latter has been adapted and amplified, to the loudspeaker and / or the headsets.

In transmission mode, the function selector of A50 audio control panel enables to connect the push-to-talk and microphone lines to the VHF NAV/COMM. transceiver inputs. Switching to transmission mode can therefore be obtained either by the push-to-talk switches located on the control wheels, or by the hand microphone control button. Actuating the push-to-talk switch triggers the transmission mode of the transceiver. A modulated VHF signal is transmitted in all directions by the antenna.

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COM 2 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL

The optional COM 2 radiocommunication installation allows radio transmissions necessary for air navigation.

The installation consists of :

- the A77 COMM./VOR-ILS/GPS transceiver,
- the E32 antenna,

For the description of navigation function of the A77 COMM./VOR-ILS/GPS transceiver - refer to 34-52-00.

For the description of GPS function of the A77 COMM./VOR-ILS/GPS transceiver - refer to 34-57-00.

The installation also uses A50 audio control panel - refer to 23-11-00.

It is electrically supplied by "BUS 3" bar.

2. LOCATION (Figure 1)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A77 COMM./VOR-ILS/GPS transceiver	1	251C	/	23-10-00
E32 antenna	1	210	/	23-12-02
Circuit breakers : - CB 88 "COM 2"	1	PL1	/	WM

3. DESCRIPTION

A. A77 COMM./VOR-ILS/GPS transceiver (Figure 2)

The COMM./VOR-ILS/GPS transceiver enables air-to-ground or air-to-air communications within the 118.00 MHz to 136.975 MHz frequency range.

The COMM./VOR-ILS/GPS transceiver is a rectangular box installed in an attachment rack. Connections are made through three electrical connectors and four antenna connectors located on the panel rear face.

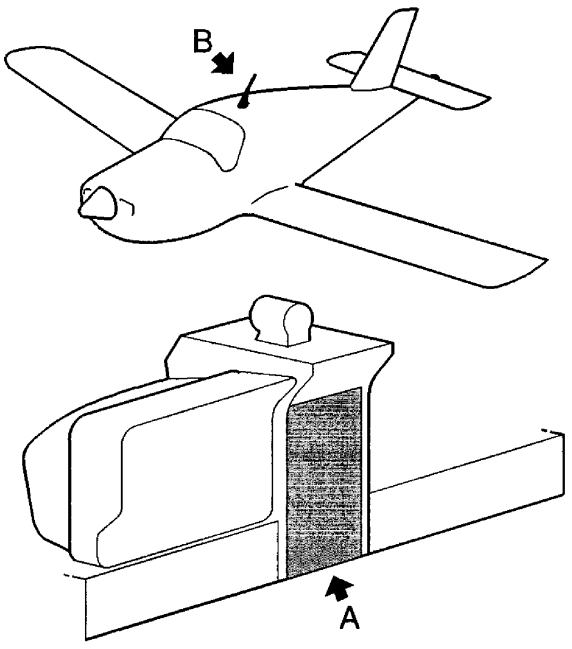
For communication function, the panel front face includes :

- A digital display (1) subdivided in three main windows. The COMM. function window (3) is located in the top left part of the display. This window displays the frequency being used (active frequency) and the window below displays the standby frequency,
- ".C" button (5) enables equipment energization, audio level control and squelch level control,
- "C<->" pushbutton (4) is used to transfer the standby frequency in active frequency and vice versa,
- two concentric knobs (2) are used to modify standby frequency over the cursor when the cursor function is enabled. If necessary, push momentarily the inner concentric knob in to enable cursor function.

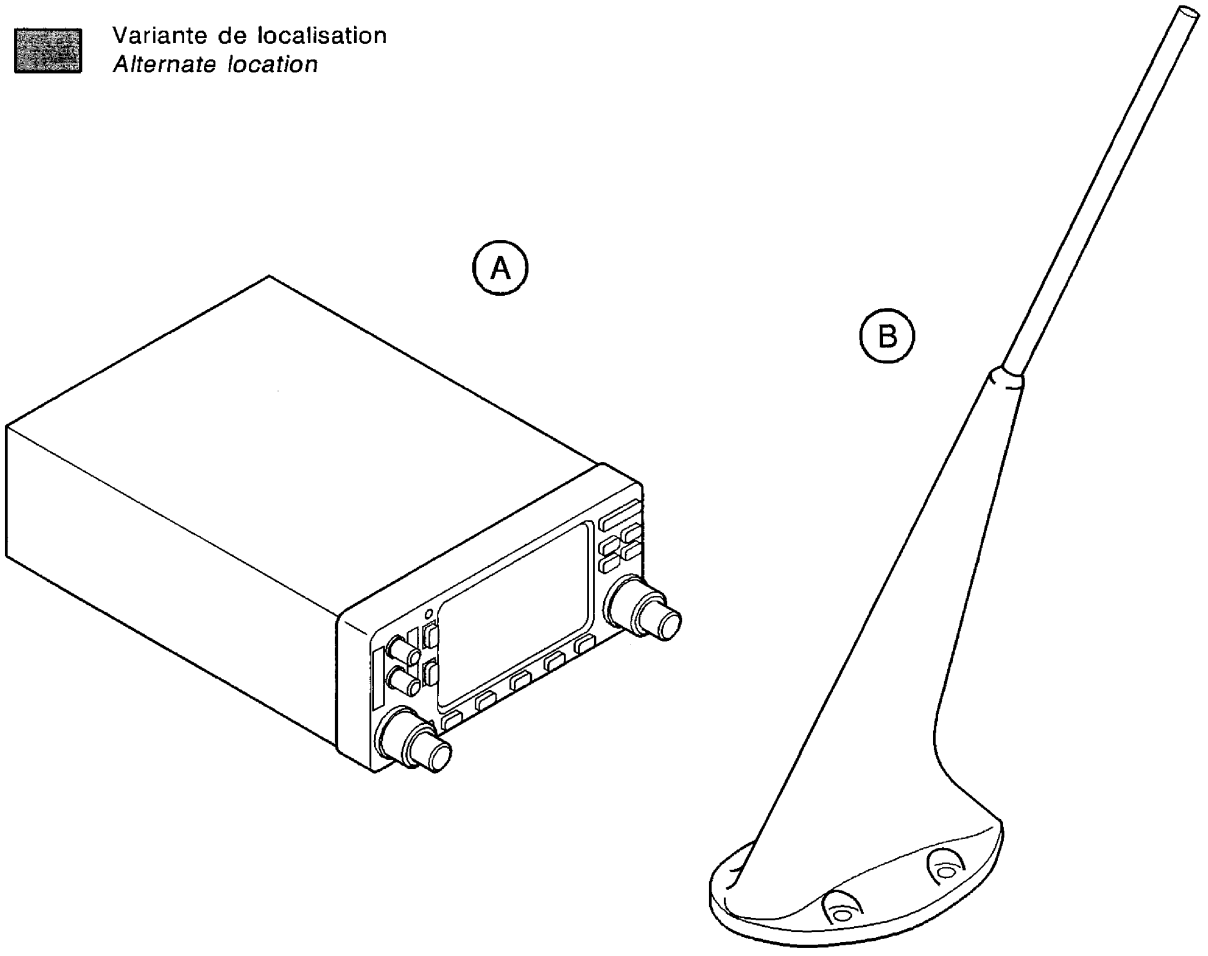
COMM./VOR-ILS/GPS transceiver is electrically supplied by "BUS 3" bar via a radio master relay. It is protected by CB 88 "COM 2" circuit breaker.

COMM./VOR-ILS/GPS transceiver is mounted on PL30 radio rack.

A - A77 COMM./VOR-ILS/GPS transceiver
B - E32 antenna



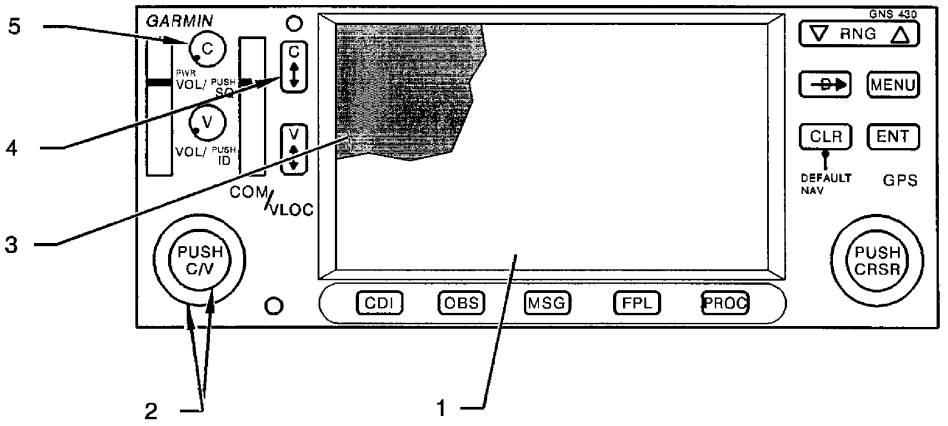
Variante de localisation
Alternate location



I4231300AAAAVZ4100

COM 2 installation – Identification and location of components
Figure 1

1 - Digital display
2 - Concentric knobs
3 - COMM. window
4 - C<-> pushbutton
5 - ".C" button



I423120AAARVZ4100

COM 2 installation - A77 COMM./VOR-ILS/GPS transceiver
Figure 2

B. E32 Antenna

The antenna is a vertical polarization aerial, with a 50-ohm impedance intended for omni-directional transmission and reception of signals within 118 to 136.975 MHz frequency band.

The antenna ensures the propagation and the reception of data-conveying electromagnetic waves.

The antenna is mounted on top of the fuselage between the cabin access doors.

4. OPERATION (Figure 3)

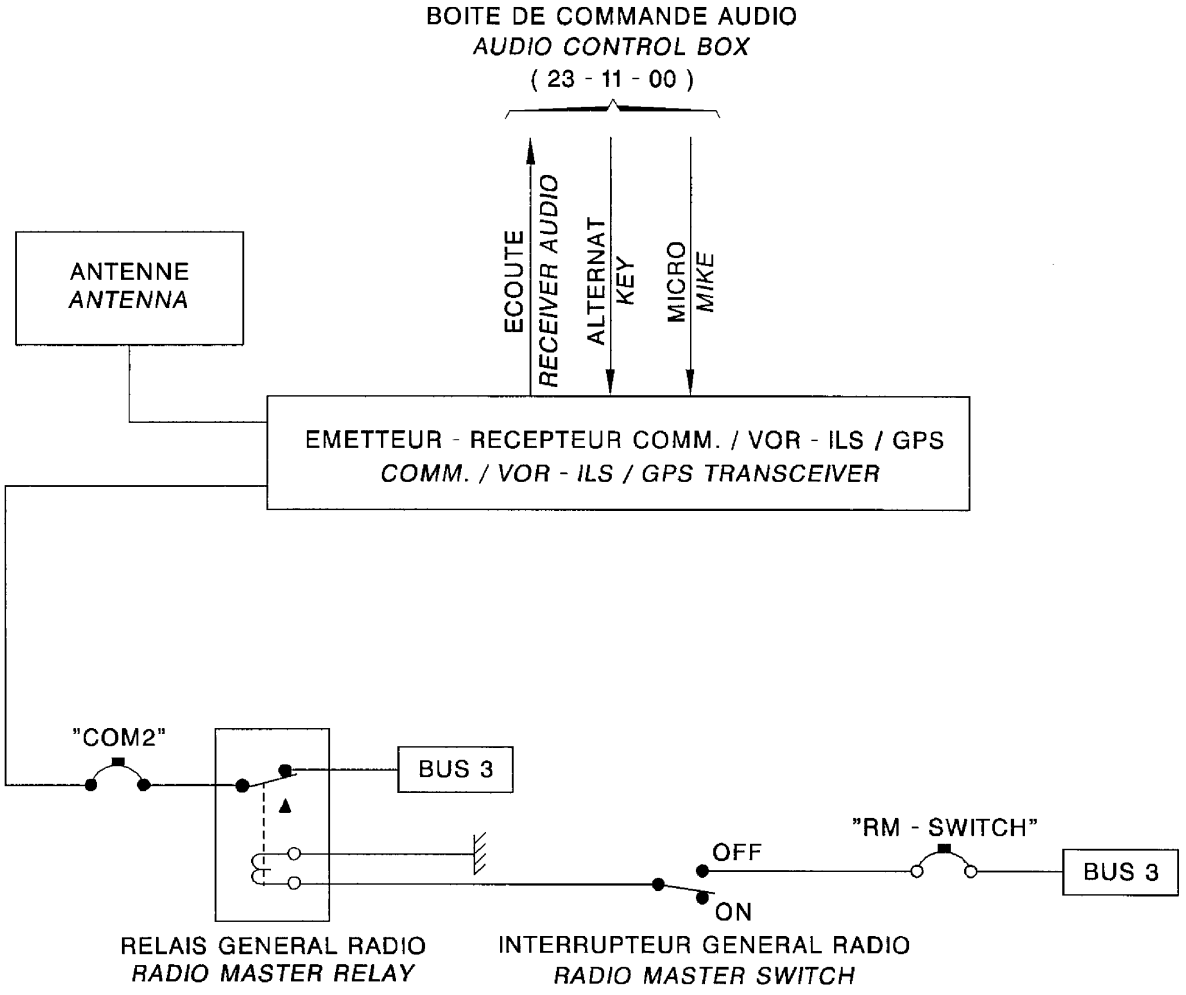
The radio master switch controls the energization of all the radionavigation and radiocommunication systems.

Electrical power supply to radiocommunication and radionavigation systems is automatically interrupted during the engine starting phase.

In reception mode, COMM./VOR-ILS/GPS transceiver receives the signals detected by the antenna. Once the useful signal of the carrier wave has been extracted, an audio signal provided by the transceiver is applied at the input of A50 audio control panel. The position of the headset and/or loudspeaker selection buttons assigned to COM 2 (on A50 audio control panel) determines the application of the audio signal, once the latter has been adapted and amplified, to the loudspeaker and / or the headsets.

Press and hold transceiver "C<->" pushbutton to select directly the 121.500 MHz emergency frequency as active frequency.

In transmission mode, the function selector of A50 audio control panel enables to connect the push-to-talk and microphone lines to the COMM./VOR-ILS/GPS transceiver inputs. Switching to transmission mode can therefore be obtained either by the push-to-talk switches located on the control wheels, or by the hand microphone control button. Actuating the push-to-talk switch triggers the transmission mode of the transceiver. A modulated VHF signal is transmitted in all directions by the antenna.



I4231200AAASVZ14100

COM 2 installation – Wiring diagram
Figure 3

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COM 2 INSTALLATION

DESCRIPTION AND OPERATION

1. GENERAL

The optional radiocommunication COM 2 installation allows radio transmissions necessary for air navigation.

The COM 2 installation includes :

- an A52 VHF transceiver,
- an E32 antenna.

The installation also uses the A50 audio control panel - refer to 23-11-00.

The COM 2 installation is electrically supplied by "BUS 3" bar.

2. LOCATION (Figures 1 and 2)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
A52 VHF transceiver	1	251C	/	23-10-00
E32 antenna	1	210	241	23-13-02
Circuit breaker : - CB 88 "COM 2"	1	230	232L	WM

3. DESCRIPTION

A. A52 VHF transceiver (Figure 3)

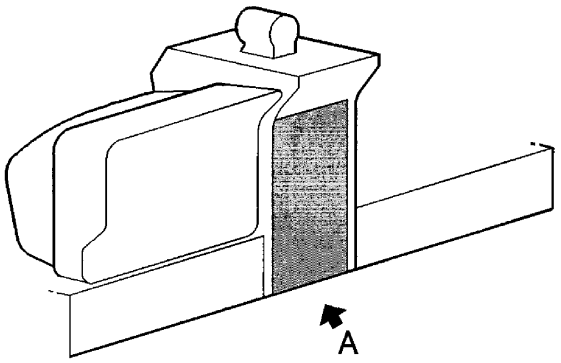
The VHF transceiver enables air-to-ground or air-to-air communications within the 118.00 MHz to 136.975 MHz frequency range. It has the capability of programming up to nine memory channel frequencies for later recall.

The VHF transceiver consists of a rectangular box. The back panel features an antenna receptacle and a connector consisting of a printed circuit plate.

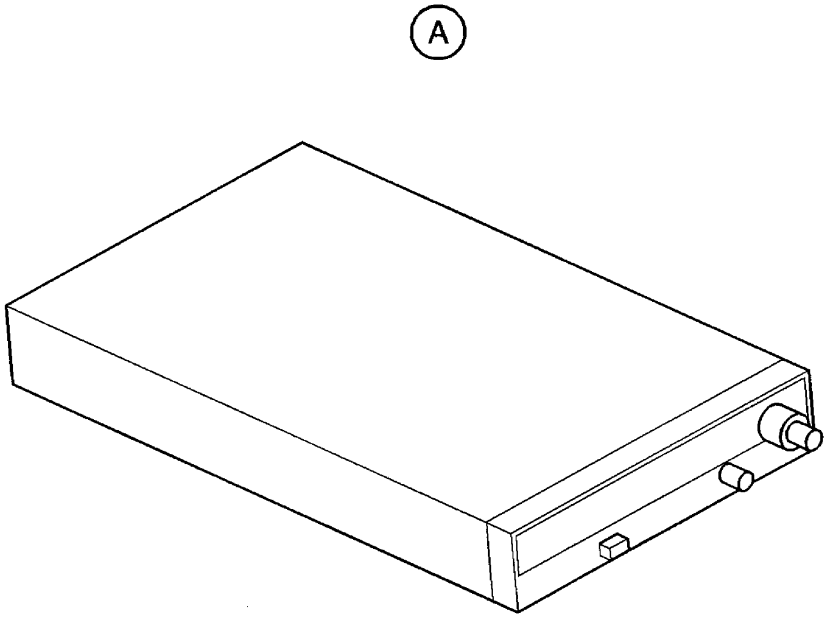
The front panel features :

- a display for frequency information visualization. The display brightness is automatically controlled by a photocell. This display is divided in two windows, a "USE" window and an "STBY" window. The "USE" window shows the frequency in use (active frequency), the "STBY" window shows the standby frequency.
- two concentric knobs to select the frequency displayed in "STBY" window. The outer knob is used to increase or decrease the frequency in increments of 1 MHz. The inner knob, when pushed in, increases or decreases the frequency in increments of 50 KHz and in increments of 25 KHz when pulled out.
- an "OFF-PULL TEST" knob to turn on the equipment and to adjust the audio level. It also controls automatic squelch.
- a "CHAN" button to enter the channel mode used to recall preset frequencies stored in memory.
- a transfer button "↔" which enables the frequency displayed in the "USE" window to flip-flop with the frequency displayed in the "STBY" window.

A - A52 VHF transceiver

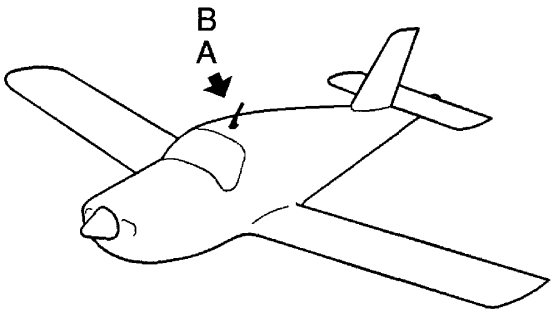


Variante de localisation
Alternate location

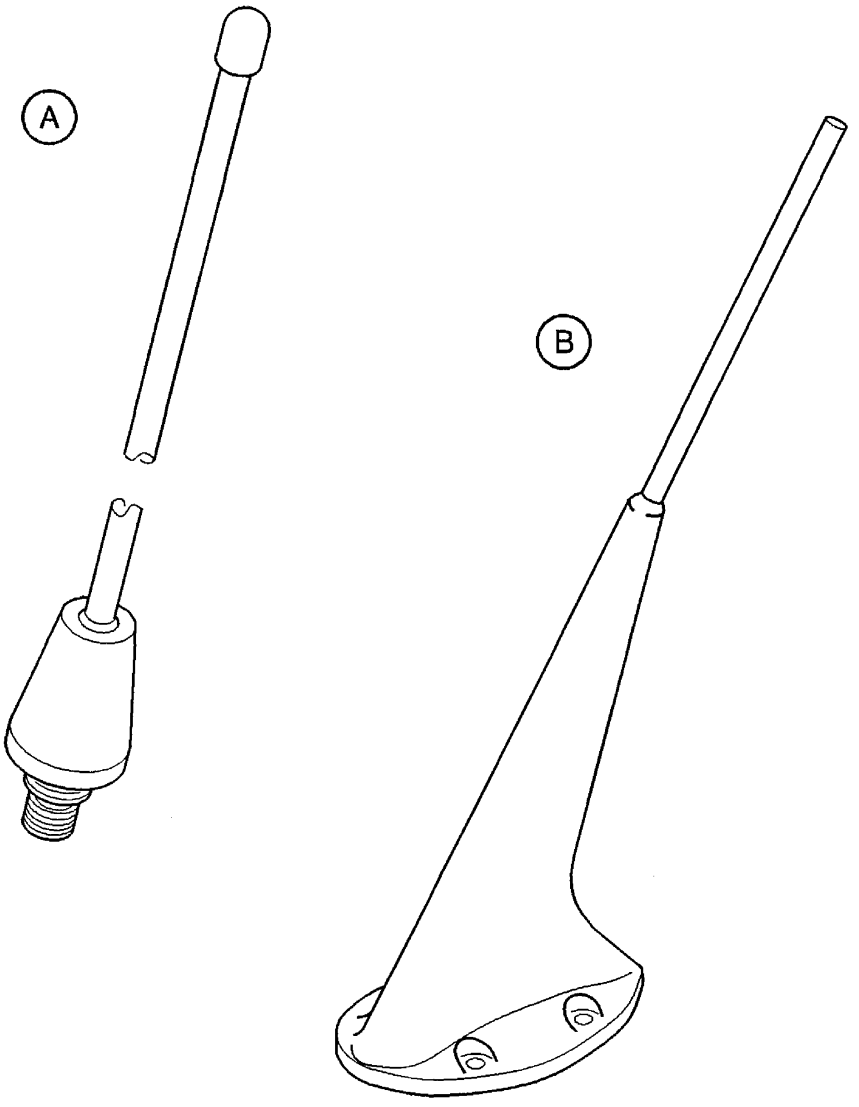


I4231000AABDVZ4200

COM 2 installation - Identification and location of components
Figure 1



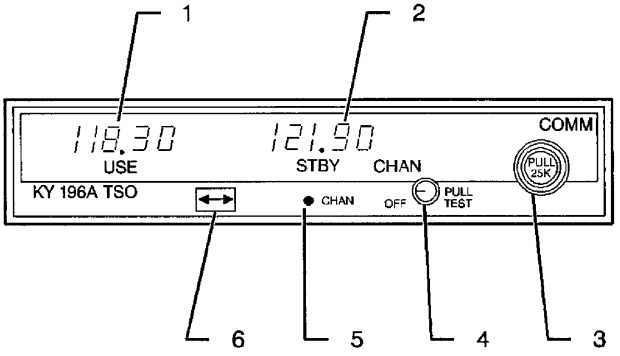
A - E32 whip type antenna
B - E32 faired antenna (variant)



I4231000AAAAYZ24102

COM 2 installation - Identification and location of components
Figure 2

1 - "USE" window
2 - "STBY" window
3 - Frequency selector knobs
4 - "OFF - PULL TEST" knob
5 - "CHAN" button
6 - Frequency transfer button



I4231200AAACMA4000

COM 2 installation - A52 VHF transceiver
Figure 3

The VHF transceiver is electrically supplied by "BUS 3" bar via a master radio relay.

Supply line is protected by CB 88 "COM1" circuit breaker

The VHF transceiver is mounted on PL30 radio rack.

B. E32 antenna

The E32 antenna is a vertical polarisation aerial, with a 50-ohm impedance intended for omni-directional transmission and reception of signals within 118 to 136.975 MHz frequency band.

Pre-MOD. 151

The E32 whip type antenna ensures the propagation and the reception of data-conveying electromagnetic waves. It can be replaced by an optional faired antenna.

Post-MOD. 151

The E32 faired antenna ensures the propagation and the reception of data-conveying electromagnetic waves.

All

The E32 antenna is mounted on top of the fuselage between the cabin access door.

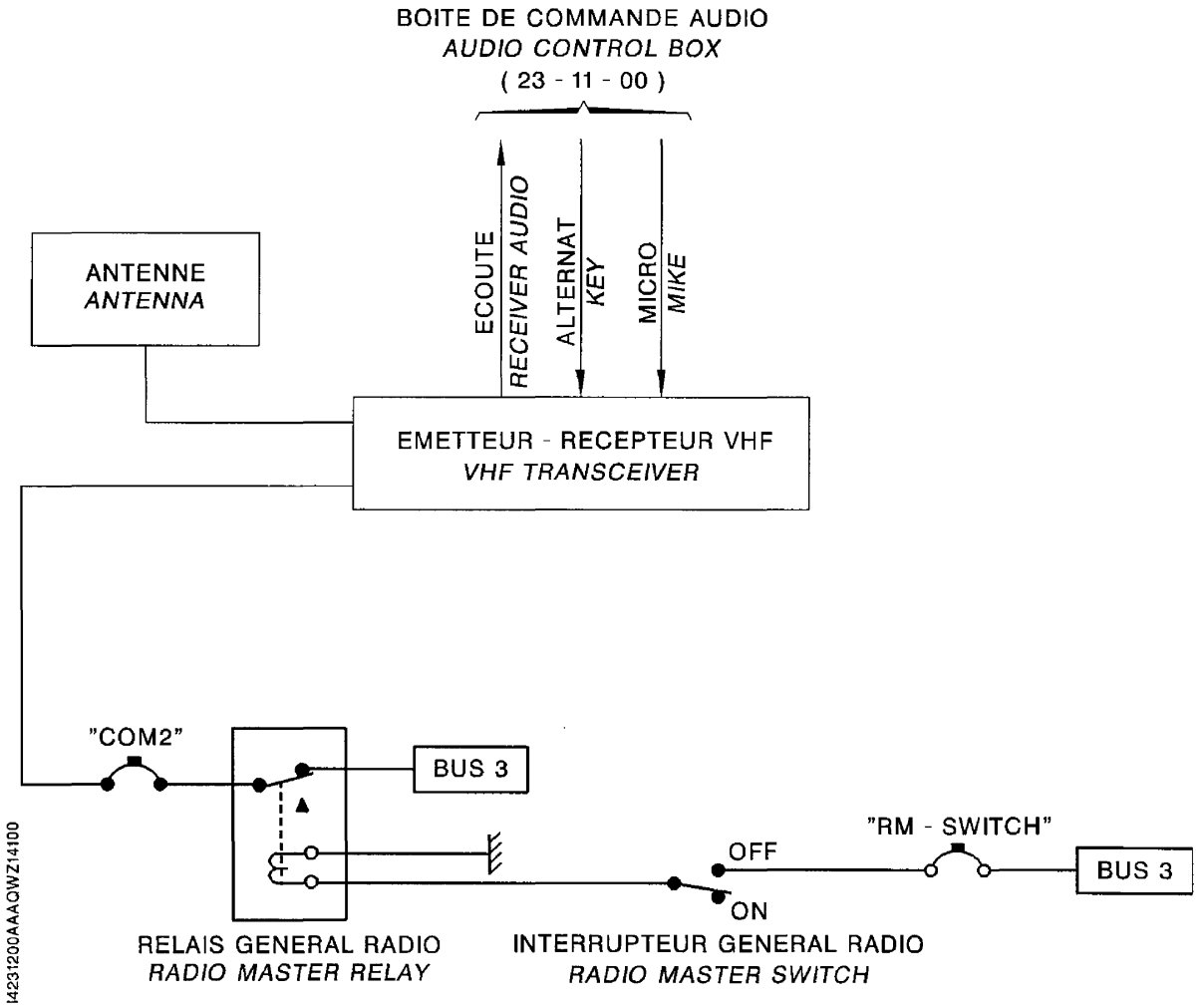
4. OPERATION (Figure 4)

The radio master switch controls the energization of all the radiocommunication and radionavigation systems.

Electrical power supply to radiocommunication and radionavigation systems is automatically interrupted during the engine starting phase.

In reception mode, VHF transceiver receives the signals detected by the antenna. Once the useful signal of the carrier wave has been extracted, an audio signal provided by the VHF transceiver is applied at the input of A50 audio control panel. The position of the headsets and/or loudspeaker selection buttons assigned to COM 2 installation (on A50 audio control panel) determines the application of the audio signal, once the latter has been adapted and amplified, to the loudspeaker and/or the headsets.

In transmission mode, the function selector of A50 audio control panel set to COM 2 enables to connect the push-to-talk and microphone lines to the VHF transceiver inputs. Switching to transmission mode can therefore be obtained either by the push-to-talk switches located on the control wheels, or by the hand microphone control button. Actuating the push-to-talk switch triggers the transmission mode of the VHF transceiver. A modulated HF signal is transmitted in all directions by antenna.



COM 2 installation - Wiring diagram
Figure 4

ANTENNA

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - ANTENNA (Figures 201 and 201A)

A. Tools and consumable materials

- Sealant (TB 09-903)
- Plastic scraper
- Abrasive cloth (TB 05-916C)
- Alodine (TB 13-002)
- Cleaning agent (TB 11-912)
- Clean lintfree cloth

B. Removal of the antenna

1) Make sure the switch-breaker of the main switch is open.
2) If screws (2) are sealed, remove the sealant.
3) If a sealant bead is applied around the antenna, remove the sealant with a plastic scraper.

Aircraft with overhead panel 241

4) Remove the radio loudspeaker grille.
5) Remove the radio loudspeaker to gain access to the overhead panel central attachment.
6) Remove the screw and the washer of the overhead panel central attachment.
7) Hold the overhead panel and remove the front and rear attachment screws and washers.
8) Sufficiently clear the overhead panel to gain access to connector (6).

NOTE : For the remaining operations, hold the overhead panel suspended by an appropriate means to avoid overstressing the electrical wires.

Aircraft without overhead panel 241

4) If antenna cover upholstering (8) is installed, remove screws (9), washers (10) and antenna cover upholstering (8).
5) Remove screws (11), washers (12) and antenna cover (7).

All

9) Disconnect connector (6).
10) Remove screws (2).
11) Remove antenna (1) and gasket (3).
12) If the gasket (3) removed is a bonding gasket, retain it, otherwise discard the gasket.

NOTE : A bonding gasket is characterized by the presence of metallic wires crossing right through the gasket.

13) Remove any sealant residues on the antenna and the fuselage.

C. Installation of the antenna

1) Make sure the switch-breaker of the master switch is open.
2) If the antenna was installed with a non-bonding gasket, perform the following operations
   a) Using a soft lead pencil, draw the contour of antenna (1) on fuselage (5).
   b) Strip the fuselage area in contact with antenna (1), at 0.01 in (2 mm) inside the contour drawn with the soft lead pencil.
   c) Clean the stripped area with a cloth moistened with cleaning agent (TB 11-912). Wipe with a dry cloth.
   d) Protect the stripped area with Alodine (TB 13-002).
3) Make sure bonding area (4) is clean. Clean the surface with a cloth moistened with cleaning agent (TB 11-912). Wipe with a dry cloth.
4) Position the retained bonding gasket (3) or a new bonding gasket - refer to the Illustrated Parts Catalog.
5) Position and secure antenna (1) with screws (2).
6) Connect connector (6).
7) Make sure all the tools and materials are removed and the work area is clean and free from debris.

Aircraft with overhead panel 241

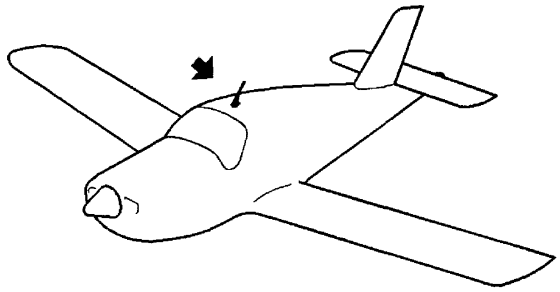
8) Position and secure the overhead panel.
9) Connect and secure the radio loudspeaker.
10) Install the radio loudspeaker grille.

Aircraft without overhead panel 241

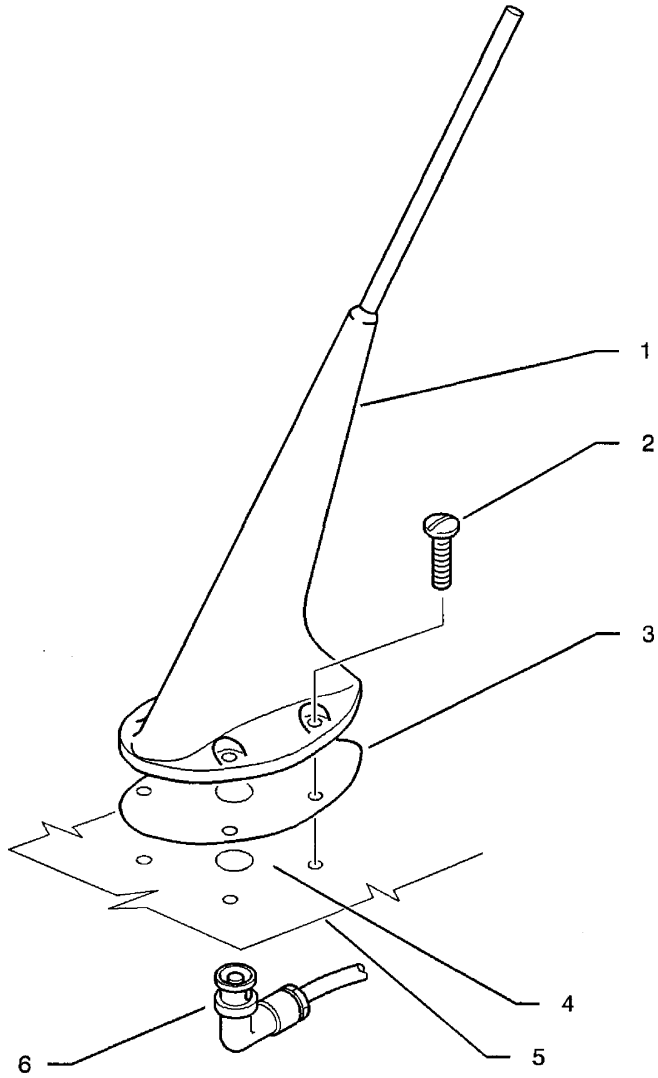
8) Position and secure antenna cover (7) with screws (11) and washers (12).
9) If necessary, position and secure antenna cover upholstering (8) with screws (9) and washers (10).

All

11) Apply a bead of sealant (TB 09-903) around the antenna / fuselage junction.
12) Seal the heads of screws (2) with sealant (TB 09-903).
13) Perform an operational test of COM 2 system.

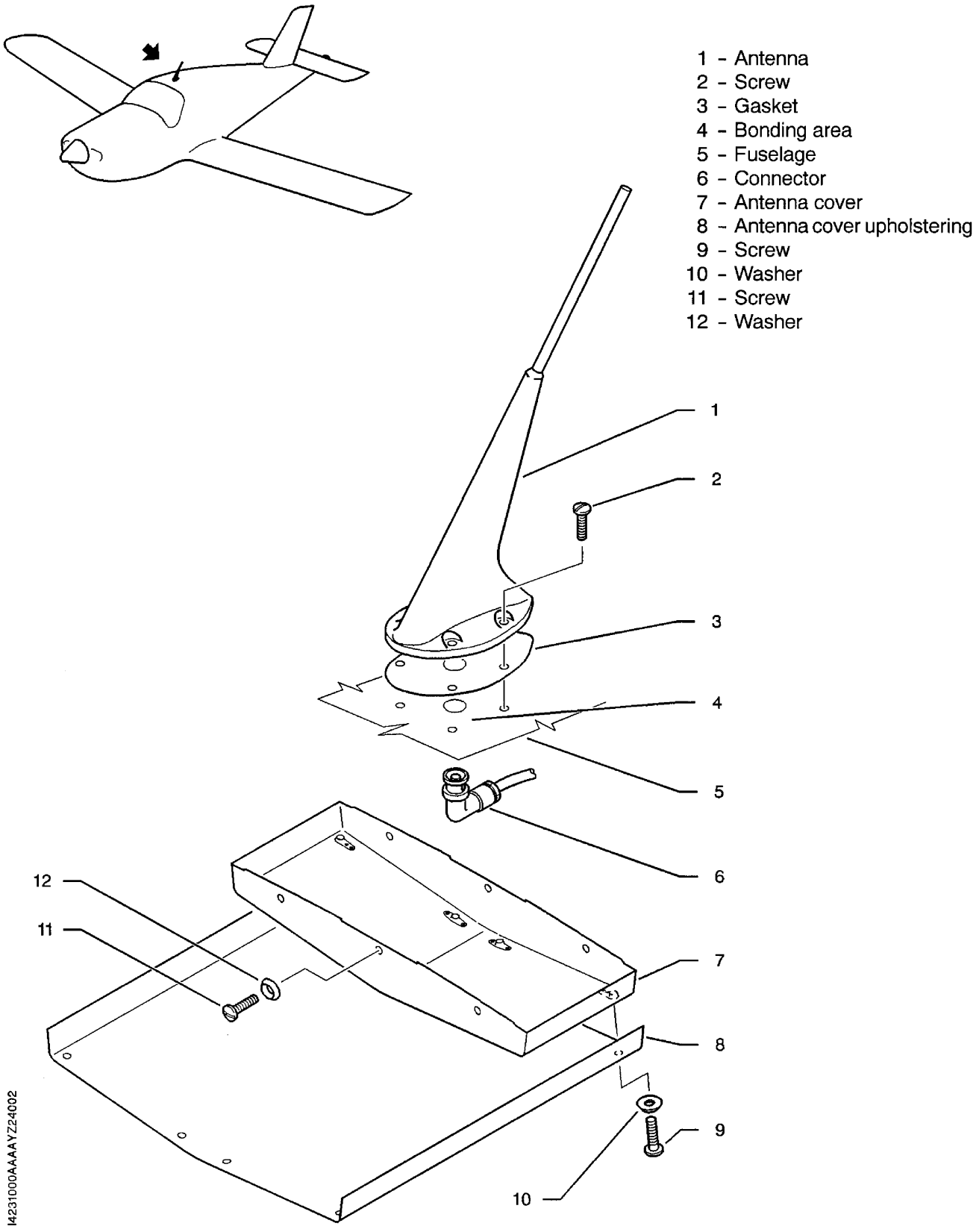


1 - Antenna
2 - Screw
3 - Gasket
4 - Bonding area
5 - Fuselage
6 - Connector



I4231000AAAAYZI4202

Antenna - Removal / Installation
Figure 201 - With overhead panel



Antenna - Removal / Installation
Figure 201A - Without overhead panel

AAAA
Validity : Option Pre-MOD. 151

E32 ANTENNA

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION - E32 ANTENNA (Figure 201)

A. Tools and consumable materials

- Sealant (TB 09-903)
- Plastic scraper
- Cleaning agent (TB 11-912)
- Clean lintfree cloth

B. Removal of the antenna

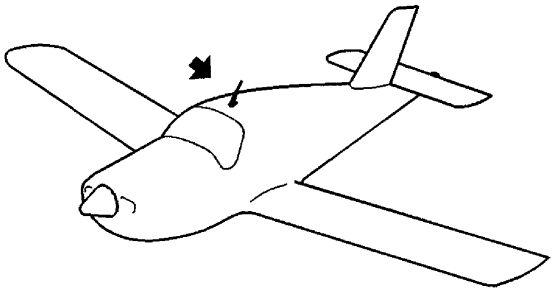
1) Make sure the switch-breaker of the main switch is open.
2) If screws (2) are sealed, remove the sealant.
3) If a sealant bead is applied around the antenna, remove the sealant with a plastic scraper.
4) Hold the overhead panel 241 and remove the front and rear attachment screws and washers.
5) Sufficiently clear the overhead panel to gain access to connector (6).

NOTE : For the remaining operations, hold the overhead panel suspended by an appropriate means to avoid overstressing the electrical wires.

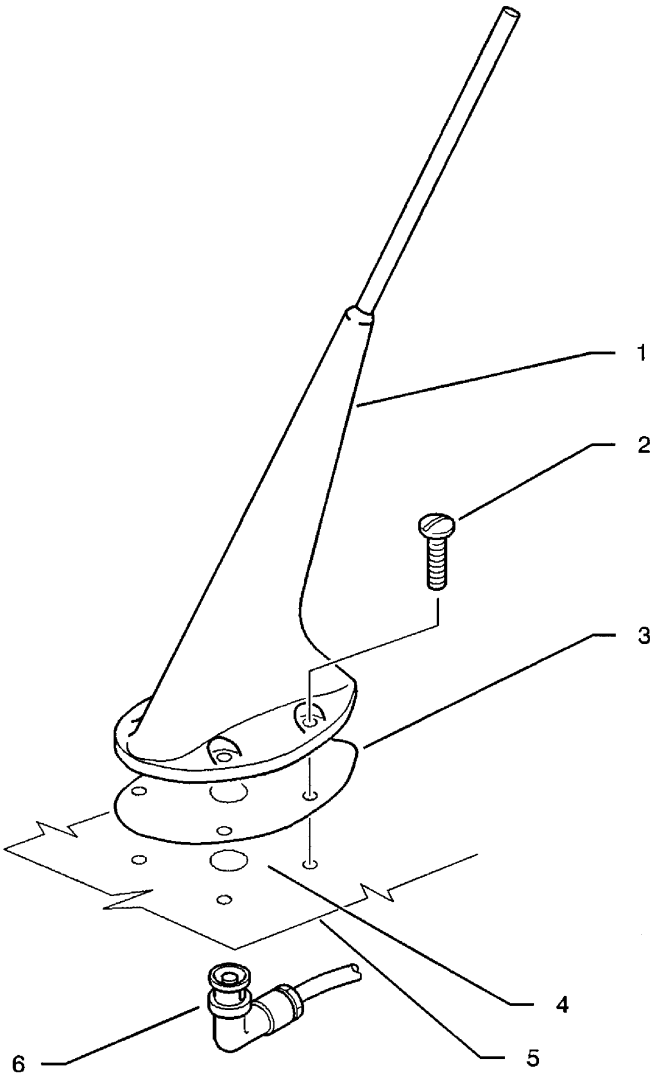
6) Disconnect connector (6).
7) Remove screws (2).
8) Remove antenna (1) and gasket (3).
9) Remove any sealant residues on the antenna and the fuselage.

C. Installation of the antenna

1) Make sure the switch-breaker of the master switch is open.
2) Make sure bonding area (4) is clean. Clean the surface with a cloth moistened with cleaning agent (TB 11-912). Wipe with a dry cloth.
3) Position the retained bonding gasket (3) or a new bonding gasket - refer to the Illustrated Parts Catalog.
4) Position and secure antenna (1) with screws (2).
5) Connect connector (6).
6) Make sure all the tools and materials are removed and the work area is clean and free from debris.
7) Position and secure the overhead panel.
8) Apply a bead of sealant (TB 09-903) around the antenna / fuselage junction.
9) Seal the heads of screws (2) with sealant (TB 09-903).
10) Perform an operational test of COM 2 system.



1 - Antenna
2 - Screw
3 - Gasket
4 - Bonding area
5 - Fuselage
6 - Connector



I4231000AAAAYZ14202

E32 antenna - Removal / Installation
Figure 201

STATIC DISCHARGERS

DESCRIPTION AND OPERATION

1. GENERAL

Wick–type static dischargers allow improving radio communications when flying through dust or various forms of precipitation (rain, sleet, snow).

The buildup of static electricity in the aircraft can affect the quality of radio communications on all communications and navigation equipment.

2. LOCATION (Figures 1 and 1A)

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Flap and aileron dischargers	2	500	/	/
Flap and aileron dischargers	2	600	/	/
Elevator dischargers	2 or 4	330	/	/
Rudder discharger	1 or 2	320	/	/

3. DESCRIPTION

A. Standard static dischargers

Fastened to the external trailing edge of the wing flaps, ailerons, elevator and to the top end of the rudder, the dischargers are made of a braided wick and are partially protected by a heat–shrinkable sheath.

B. Optional static dischargers

Static dischargers allow a good and continuous discharge of the electrostatic charges stored by the aircraft.

Static dischargers are installed on the trailing edges of the flaps, the ailerons, the rudder and the elevator.

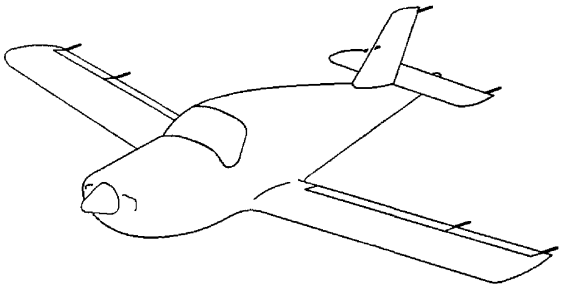
The static discharger is flexible in order to ensure the safety of people walking around the aircraft. It is rod–shaped and composed of several wires of semi–rigid carbon fibers.

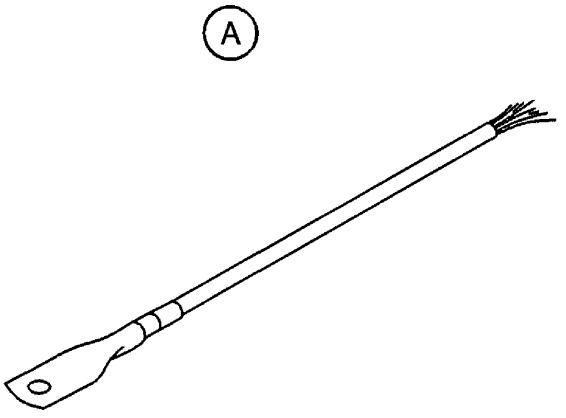
4. OPERATION

The electrostatic charges mainly result from the impact speed or the friction of particles suspended in the air, over the different parts of the aircraft. The electrostatic charges get more significant when going through various kinds of precipitations (rain, snow or ice crystals). The static discharger discharges electostatic charges in the atmosphere generating a diminution of noise (in the radio–frequency spectrum). The noise issued from the electrostatic discharge can create mistakes or variations on the indications supplied by on–board system (ADF).

The NAV/COM systems on the VHF upper frequencies can be disturbed.

A – Standard static discharger





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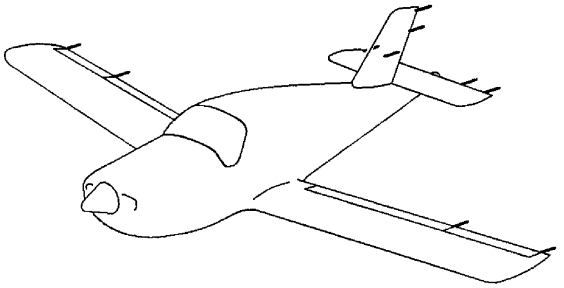
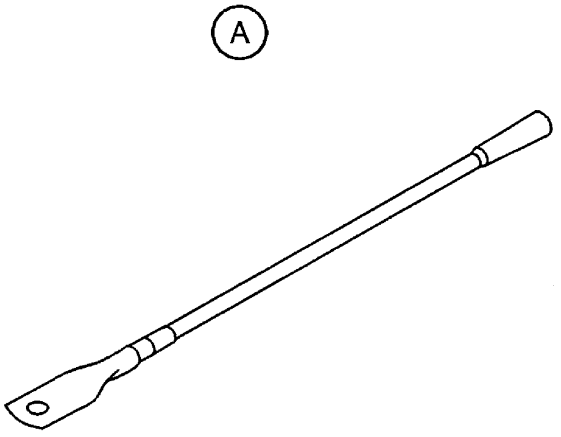
Static dischargers – Identification and location of components
Figure 1 – SOCATA

A – Optional static discharger





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Static dischargers – Identification and location of components
Figure 1A – CHELTON

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STATIC DISCHARGERS

MAINTENANCE PRACTICES

1. SERVICING

None

2. REMOVAL / INSTALLATION – STATIC DISCHARGER

None

3. ADJUSTMENT / TEST – STATIC DISCHARGER (Figure 201)

A. Tools and consumable materials

- Wet sponge
- Megohmmeter, P/N RL2102 AOIP or equivalent
- Steel wool

B. Static discharger test

WARNING : THIS TEST INVOLVES HIGH VOLTAGE. DURING THE TEST, HOLD THE TEST CABLES FROM THE INSULATED END.

1) Using a cable fitted with an alligator clip, connect static discharger base (3) to the negative terminal of megohmmeter (2).
2) Attach a wet sponge (1) to a cable fitted with an alligator clip at one of its ends. Connect the other end of the cable to the positive terminal of the megohmmeter.
3) Set the megohmmeter for a minimum resistance measurement of 10 MΩ at a 500–VDC test voltage.
4) Touch the static discharger end with the wet sponge.

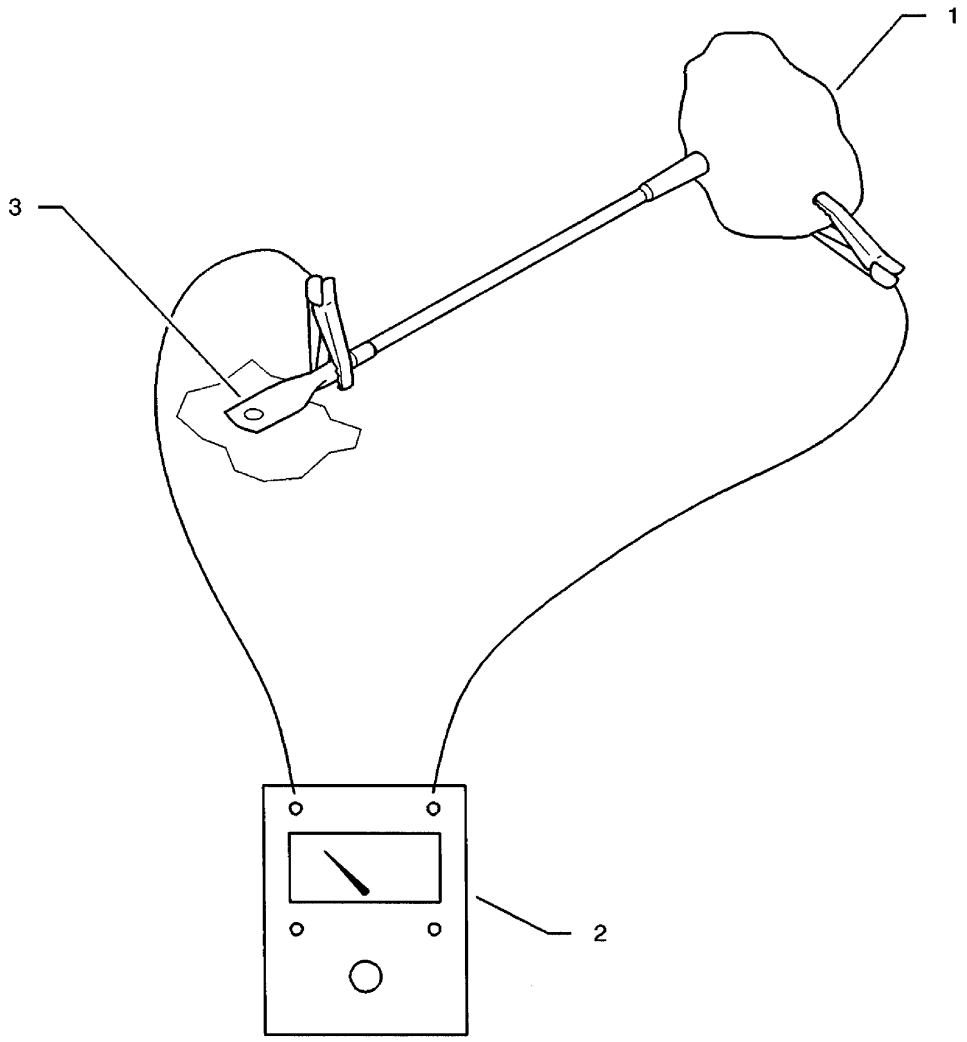
   NOTE : Perform the measurement while holding the static discharger straight.

5) Read the resistance measured by the megohmmeter.

   NOTE : If the measured resistance is less than 6 MΩ, replace the wet sponge with a piece of steel wool. Perform a new resistance measurement.

6) Replace the static discharger when the measured resistance value is outside the following tolerance : 6 MΩ < R < 150 MΩ.

1 – Wet sponge or steel wool
2 – Megohmmeter
3 – Static discharger base



I4236000AADVZ4000

Static discharger – Adjustment / Test
Figure 201