

DESCRIPTION AND OPERATION

COMMUNICATIONS

2.31. COMMUNICATIONS

2.31.1 VHF COMMUNICATION SYSTEM

The VHF Communication System consists of:

- two VHF-4000 tranceivers (VHF COM1 and VHF COM2),
- two VHF antennas.

The VHF COM transceivers are remote-mounted multichannel VHF voice transceivers that provide AM voice communications. They are installed in the central section of the nosecone avionics bay.

The VHF COM transceivers are able to operate from 118.00 to 136.975 MHz in 25 or 8.33 kHz steps.

The COM transceivers functions are controlled through the Radio Tuning Unit (RTU, namely the on-side control for COM1) and the Control Display Unit (CDU, namely the on-side control for COM2).

Controls include the settings of radio frequencies and operational modes. The CDU and RTU provide control of both on-side and cross-side radios from the pilot or co-pilot position.

Each Tuning Unit supports full reversionary tuning for the cross side radios, in case of cross side unit failure.

In addition to the radio frequencies presented with various navigational displays on the PFDs, the current VHF COM1 and COM2 frequencies are shown in green along the bottom of both PFDs.

Receivers and transmitter functions are managed through the Audio Integrating System, by means of the controls available on the audio Panels and the MIC Pushbutton on the pilots Control Wheel (Push To Talk logic).

Refer to the Collins "Pro Line 21 Avionics System Operator's Guide, for the Piaggio P.180 Avanti", doc. n. 523-0806484, for details about the VHF Communication System Operations.

The VHF COM1 Transceiver is fed by the Essential Bus through the COMM1 7.5ampere circuit breaker on the Pilot's C/B panel.

The VHF COM2 Transceiver is fed by the Right Avionics Dual Feed Bus through the COMM2 7.5-ampere circuit breaker on the copilot's C/B panel.

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The VHF COM1 system is provided with electrical power also in case of a double generators failure. Furthermore, in case of total loss of aircraft DC power sources (DC generators and battery) the COM1 transceiver is automatically switched to the Emergency Power Bus (powered through an EPU) to assure at least 30 minutes of operative time for communications on 121.500 MHz emergency frequency.

In emergency conditions the VHF COM 1 transceiver can be operated by means of the "EMER COMM1" guarded pushbutton, available on the Miscellaneous/ Reversionary Panel. When the "EMER COMM1" function is enabled, the transceiver is "forced" to operate on 121.500 MHz VHF/AM emergency frequency, independently from the operative status and settings of the CDU/RTU.

The Master Avionics switch on the Master Control Panel includes the "COM1 only" position, to allow the use of the COM1 transceiver on ground condition, without powering other avionics systems.



Figure 2.31-1. VHF COM1 and VHF COM2 block diagram

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2.31.2 AUDIO INTEGRATING SYSTEM

The audio signals from Communication, Navigation and Aural Warning systems as well as the microphone are managed by means of the Audio Integrating System (AIS).

The AIS provides control and distribution of microphone and audio signals to the pilot and copilot and to the passengers cabin speakers.

Operations of the Audio Components (speakers, jack panels, hand microphone and push to talk control wheel) are controlled by the Pilot's and Copilot's Audio Panels.

The two audio panels, installed on the left and right side of the instrument panel, allow the pilot and copilot to manage the following functions:

- speaking through any COM equipment or in interphone;
- listening to COM, NAV, ADF, MKR or DME sources or a combination of them;
- selection of the microphone input (from mask or boom set);
- selection of the cockpit (headphones or speakers) and the passengers (cabin speakers) output devices;
- adjusting the volume of NAV, COM, ADF and H'MIC;
- selection of FLT and EMG functions.

Also, aural tones coming from the Aural Warning Tone System are routed to the Audio Panels, integrated with the other audio signals. Aural Warning Tones cannot be deselected nor adjusted.

The pilot's Audio Panel is fed by the Essential Bus, through the AUDIO1 3ampere circuit breaker on the Pilot's C/B panel. In this way the Audio Panel is provided with electrical power also in case of a double generators failure.

The Copilot Audio Control Panel is fed by the Right Avionics Dual Feed Bus, through the AUDIO2 3-ampere circuit breaker on the copilot's C/B panel.

The Master Avionics switch on the Master Control Panel includes the "COM1 only" position, to allow the use of the pilot Audio Panel on ground, without powering other avionics systems.



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Figure 2.31-2. Audio Integrating System block diagram

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