This manual provides detailed operating instructions for the PS Engineering PMA8000, Audio Selector Panel/Intercom Systems. Please read it carefully before using the equipment so that you can take full advantage of its capabilities.

This publication is divided into four sections covering the basic operating areas of the PMA8000 systems. They are Communications Transceiver Selection, Audio Selector, Intercom, and Marker Beacon Receiver.

### Power Switch (1) (EMG-Fail Safe Operation)

Unit power is turned on and off by pushing the volume knob. In the OFF or "EMG" position, the pilot headset is connected directly to Com 1. This allows communication capability regardless of unit condition. Any time power is removed or turned OFF, the audio selector will revert to fail-safe mode.

The power switch controls all audio selector panel functions, intercom and marker beacon receiver.

### Communications Transmit (XMT) Selection (2)

There are two pushbuttons associated with the transmitter selection. The two lower buttons (item 2) control which transceiver is selected for transmit. The top row of pushbuttons labeled **COM 1** and **COM 2** allows selection of the receiver audio.

Push the lower button to select the desired COM transmitter.

The PMA8000-Series has an automatic selector mode. Audio from the selected transceiver is automatically heard in the headsets and speaker (if selected). You can check this function by switching from COM 1 transmitter to Com 2 transmitter by pressing the COM 2 transmitter selector pushbutton.

Note that the associated Com 2 receive pushbutton annunciator light that is

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After discussing the problem with the technician and you obtain a Return Authorization Number, ship product to:

PS Engineering, Inc.
Attn: Service Department
9800 Martel Rd
Lenoir City, TN 37772
(865) 988-9800 FAX (865) 988-6619
Email: contact@ps-engineering.com

Units that arrive without an RMA number, or telephone number for a responsible contact, will be returned un-repaired. PS Engineering is not responsible for items sent via US Mail.
During the first 

located immediately above the Com 2 transmitter pushbutton turns green. This guarantees that the pilot will *always* hear the audio from the transceiver selected for transmit.

The PMA8000 “remembers” the receiver selection, so that when switching transmitters from COM 1 to COM 2, if COM 2 audio was previously selected, COM 1 audio will continue to be heard. This eliminates the pilot having to switch COM 1 audio back on, after changing transmitters.

When switching from COM 1 to COM 2 while COM 2 was not previously selected, COM 1 audio will be switched off. In essence, switching the mic selector will not override prior selection of COM receiver audio.

In normal (not split) modes, the PMA8000 gives priority to the pilot’s radio Push-To-Talk (PTT). If the copilot it transmitting, and the pilot presses his PTT, the pilot’s microphone will be heard over the selected com transmitter.

In TEL mode, the pilot microphone and headphones are connected to the cell phone. The pilot PTT will switch the pilot mic to the selected com transceiver, and allow continued aircraft communications to continue.

The copilot will also be able to transmit on the other selected radio with his PTT as well.

**Split Mode**

The split mode can be activated at any time by pressing the COM 1 and COM 2 XMT buttons at the same time. This places the pilot on COM 1 and the Copilot on COM 2.

Pilot on COM 2 and Copilot on COM 1 is not possible.

**NOTE:** Due to the nature of VHF communications signals, and the size constraints in general aviation aircraft, it is probable that there will be some bleed-over in the Split mode, particularly on adjacent frequencies.

PS Engineering makes no warranty about the suitability of Split Mode in all aircraft conditions.

**Swap Mode (Switch from Com 1 to Com 2 remotely)**

With a yoke mounted, momentary switch, the pilot can change from the current Com transceiver to the other by depressing this switch. To cancel “Swap Mode,” the pilot may either press the yoke mounted switch again, or select a different Com with the XMT buttons.

**Audio Selector (4)**

Navigation receiver audio is selected through five momentary, push-button, backlight switches. You will *always* hear the audio from the selected transceiver.

The users can identify which receivers are selected by noting which green switch LEDs are lit. Navigation aid audio push buttons are labeled **Nav 1, Nav**
2. MKR (Marker), ADF and AUX (auxiliary). DME audio (if present) will come through when the AUX button is selected. When one of these buttons is pressed, the mode is active, and the LED will illuminate. Press the switch again and it will be "off" and remove that receiver from the audio output.

In SPLIT mode, only the pilot will hear selected navigation audio.

**Telephone (TEL) (9)**

The TEL mode serves as a full duplex interface and distribution for portable telephone systems such as AirCell or portable cellular phones with ear-piece jacks. Pressing the TEL button activates the telephone mode. This connects the telephone to the users as follows:

In ALL intercom mode, all crew and passengers will be heard on the phone when they speak. Com and other selected radio audio is also heard in the headsets. If the pilot or copilot presses the radio PTT, their mic will be transferred to the selected Com radio. The telephone party will not hear ATC communications, and vice versa.

In CREW mode, only the pilot and copilot are connected to the telephone. Passengers will not hear the telephone. The pilot and copilot will also have transmit capability on the other selected transceiver.

In ISO intercom mode, when the PMA8000 is in the TEL mode, the pilot position is in the "Phone Booth." Only the pilot will hear the telephone, and only he will be heard. He will also have access to Com 1 or 2, and will transmit on that radio using the PTT. All selected audio is provided to the pilot.

**Note:** Because the cellphone uses an intercom circuit, all stations on that circuit will lose intercom capability when the cellphone is in use.

**Speaker Amplifier (5)**

The SPR in the push-button section stands for speaker. This switch will place all selected audio on the cockpit speaker when this switch is selected. NOTE: Except for the unswitched audio, the speaker amplifier is not active in the "Split Mode".

Unswitched audio, (the four inputs dedicated to autopilot disconnect, altimeter warning, etc.) will come through the speaker regardless of the speaker button position.

Depending on installation, important audio announcements such as radar altimeter or autopilot disconnect will come over the speaker even if it is not selected, while other unswitched, but muted inputs, such as GPS alerts, will only be pre-
sengers can continue to communicate with themselves without interrupting the Crew and may listen to Entertainment 2.

**Entertainment Input and muting control**

The PMA8000 has provisions for two entertainment devices. Entertainment #1 is heard by the pilot and copilot (crew), and Entertainment 2 is heard by the passengers. The ICS pushbutton has no effect on these music inputs, allowing independent entertainment from the mode of the intercom. The intercom volume control does not affect the music level.

While in the ISO (Isolate) mode, the copilot will hear Entertainment #1 while the four passengers will hear Entertainment #2. The Entertainment #1 will mute when either the copilot or pilot speaks, and Entertainment #2 mutes when the passengers speak. With our Soft Mute™, the music will return gradually to the original listening level when the intercom or radio conversation ceases. While in ISO mode, the Pilot will not mute the music if he presses the PTT switch to transmit or if he speaks while on the phone.

The entertainment inputs automatically mute when there is radio traffic or intercom conversation. In many cases, the muting is not desired, so mute inhibit, or “Karaoke Mode” is available. This is accomplished for the crew by pressing the “Mode” pushbutton. The unit can be wired so that AUX will put the music 2 music into Karaoke mode for the passengers. An external switch located by the passengers can also be installed in lieu of the AUX button function.

**Marker Beacon Operation (10)**

The Marker Beacon Receiver uses visual and audio indicators to alert you when the aircraft passes over a 75 MHz transmitter.

The Blue lamp, labeled "O", is the Outer Marker lamp and has an associated 400-Hertz 'dash' tone. The lamp and tone will be keyed at a rate of two tones/flashes per second when the aircraft is in the range of the Outer Marker Beacon.

The Amber lamp, labeled "M", is the Middle Marker lamp and is coupled with a 1300 Hertz tone. It is keyed alternately with short 'dot' and long 'dash' bursts at 95 combinations per minute.

The White lamp, labeled "I", is the Inner marker and has a 3000 Hertz 'dot' tone.

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sent if the SPR button is selected. Consult your professional avionics installer for these important configuration details.

**Public Address Function**

To access PA function, press the Mute and SPR buttons simultaneously. The COM1 and COM2 RCV LEDs will blink to indicate the audio panel is in PA mode. The copilot can continue to use the selected com radio while the pilot will now be heard over the speaker.

To exit PA mode, push Mute and SPR again.

**Intercom Operation**

**IntelliVox® VOX-Squelch**

No adjustment of the IntelliVox® squelch control is necessary. There is no field adjustment. Through three individual signal processors, the ambient noise appearing in all six microphones is constantly being sampled. Non-voice signals are blocked. When someone speaks, only their microphone circuit opens, placing their voice on the intercom.

The system is designed to block continuous tones, therefore people humming or whistling in monotone may be blocked after a few moments.

For consistent performance, any headset microphone must be placed within ¼-inch of your lips, preferably against them. (ref: RTCA/DO-214, 1.3.1.1 (a)). It is important to have the microphone element parallel to your mouth, and not twisted inside the cover.

It is also a good idea to keep the microphone out of a direct wind path. Moving your head through a vent air stream may cause the IntelliVox® to open momentarily. This is normal.

The IntelliVox® is designed to work with normal aircraft cabin noise levels (70 dB and above). It loves airplane noise! Therefore, it may not recognize speech and clip syllables in a quiet cabin, such as in the hangar, or without the engine running. This is normal.

**Intercom Volume Control (7)**

The small volume control knob adjusts the loudness of the intercom for the pilot and copilot. It has no effect on selected radio levels, music input levels or passengers’ volume level.

The larger, outer volume control knob controls intercom volume or the passengers. It has no effect on radio or music levels.

Adjust the radios and intercom volume for a comfortable listening level. Most general aviation headsets
today have built-in volume controls; therefore, volume also can be further adjusted at the individual headset.

For optimum microphone performance, PS Engineering recommends installation of a Microphone Muff Kit from Oregon Aero (1-800-888-6910). This will not only optimize VOX performance, but will improve the overall clarity of all your communications.

<table>
<thead>
<tr>
<th>Headset Manufacturer</th>
<th>Model</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bose</td>
<td>Dynamic Electret M87</td>
<td>90010 90015 90020</td>
</tr>
<tr>
<td>David Clark</td>
<td>H10-30 H10-20 H10-40 H10-13.4 H13X H20-10X</td>
<td>90010 90015 90015 90015</td>
</tr>
<tr>
<td>Lightspeed</td>
<td>All</td>
<td>90015</td>
</tr>
<tr>
<td>Peltor</td>
<td>7003 ANR Pro 7000</td>
<td>90010 90015</td>
</tr>
<tr>
<td>Pilot</td>
<td>11-20 11-90 1776 DXL</td>
<td>90015</td>
</tr>
<tr>
<td>Sennheiser</td>
<td>All</td>
<td>90015</td>
</tr>
<tr>
<td>Telex</td>
<td>Airman 750 AIR4000 AIR3000 Echelon 100</td>
<td>90010 90015</td>
</tr>
</tbody>
</table>

Oregon Aero MicMuff™ Part Numbers

Mono headsets in Stereo Installation
All passenger headsets are connected in parallel. Therefore, if a monaural headset is plugged in to a PMA8000 Stereo installation, one channel will be shorted. Although no damage to the unit will occur, all passengers will lose one channel, unless they switch to the “MONO” mode on the headset. PS Engineering modifies headsets to add stereo capability, using high-fidelity speakers. Contact factory for details.

Intercom Modes (8)
The “ICS” pushbutton switch on the left side of the panel provides the selection of the three intercom modes. The description of the intercom mode function is valid only when the unit is in the “Split” mode. Then, the pilot and copilot intercom is controlled with the Mode button.

Crew, ALL, and ISO. An LED shows which mode is currently active.

ISO: The pilot is isolated from the intercom and is connected only to the aircraft radio system. He will hear the aircraft radio reception (and sidetone during radio transmissions). Copilot will hear passengers’ intercom and Entertainment 1, while passengers will hear copilot intercom and Entertainment 2. Neither will hear aircraft radio receptions or pilot transmissions.

ALL: All parties will hear the aircraft radio and intercom. Crew will hear Entertainment 1, passengers will hear Entertainment 2. During any radio or intercom communications, the music volume automatically decreases. The music volume increases gradually back to the original level after communications have been completed.

CREW: Pilot and copilot are connected on one intercom channel and have exclusive access to the aircraft radios. They may also listen to Entertainment 1. Pas-