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These operations should be conducted by an authorized PS Engineering Dealer only.

These changes are not covered by warranty.
1 General Instructions

The PMA450 is factory adjusted to accommodate the typical requirements for most aircraft configurations. These are menu-driven configuration adjustments that allow the installer to tailor the specific functions.

It is recommended that these adjustments be made during initial installation only if the factory settings are not adequate. It is recommended that a PS Engineering dealer make these adjustments.

Once the PMA450 has been placed in the Installation Settings mode, pressing the line-select button to the left of the display will select that function.

The functions will either toggle on or off, as displayed, or a numerical value can be changed with the small knob.

2 Setup Mode Activation

The PMA450 must be placed in the setup mode by physically relocating a jumper plug. The top cover of the unit must be removed, and a jumper plug placed across specific pins on J6, located near the bezel.
J6 shown in REAR or NORMAL operating position

J6 Shown in FRONT, or Install Setup position

These adjustments include:

- Restore Defaults
- Unswitched Volume for input #3 & #4
- COM radio Sidetone
- COM Audio Gain
- Bluetooth On/Off
- Bluetooth Initialize
- High Noise Application settings
- VOX Sensitivity Adjustment
- “HOT” Microphone
- PA Enable
- Pilot headset Left/Right swap
2.1 Restore Defaults

Restores all user settings to the factory settings, including reinitializing the Bluetooth (see §2.4.2).

2.2 Unswitched 3&4 Vol:

This controls the level of Unswitched #3 & Unswitched #4, value from 1 (lowest) to 10 (highest). Factory default at “8.”

2.3 Com Sidetone

This provides artificial sidetone in cases where the communication radio does not provide. Com sidetone is produced by keeping the intercom active during PTT.

Com Sidetone should only be turned on when actual sidetone is not provided by the aircraft radio on the same output as the receive audio. Examples include ARC/Cessna Radios (and replacements), Narco Mark 12-series (and replacements), Narco COM 11/111/120, King KTR900-series, etc.

2.3.1 COM Gain

This is intended for demonstration purposes, when a simulated COM signal is not high enough, and NOT intended for normal operation.
2.4 Bluetooth

2.4.1 Bluetooth On/Off

Thus turns the internal Bluetooth Radio on or off. With Bluetooth OFF, no connections are possible, and cannot be used. This is for installations where the user does not want Bluetooth available, such as training or charter, or where prohibited by regulation.

2.4.2 Init Bluetooth

Initialize Bluetooth restores all Bluetooth settings (PIN, device name, pairing history) to their factory defaults.

2.5 IntelliVox® adjustment

Two installer accessible adjustments are available, VOX sensitivity, and “high noise” application.
2.5.1 High Noise Applications

The PMA450 DSP provides two special presets to improve performance in very loud applications (warbirds, open cockpit, etc).

Noise 1 attenuates all microphones by -3dB, requiring the user to speak up over the background noise, and makes the background noise less likely to trip the VOX. This is recommended for louder, but enclosed aircraft, such as deHavilland Beavers, DC-3s, T-28, etc.

Noise 2 changes the VOX threshold, so it is less likely to open without changing the microphone audio levels. In addition, a band pass filter is engaged with sharper roll off and more limited bandwidth for the intercom audio. This setting is intended for open cockpit or door-off applications.

2.5.2 VOX sensitivity

The VOX Sensitivity allows the user to further modify the IntelliVox threshold over a range of approximately 50 dB to further refine the systems for extraordinary cockpit conditions.

NOTE: these adjustments should ONLY be considered in special aircraft (i.e. limited and experimental category airworthiness certificate). IntelliVox has been proven effective in thousands of typical aircraft using the factory default settings.

An Oregon Aero Mic Muff is recommended for any headset, before attempting to modify the IntelliVox® squelch protocol.

2.6 ‘Hot Mic’ (for maintenance testing only)

Opens the IntelliVox to allow mic input to have a constant sine wave input for testing (Factory only). This change is not retained through power cycle.
2.7 PA Enable

This function allows the PMA450 to produce a logic output on J2-pin 19 if the unit is used to switch a Public Address speaker relay. Otherwise, this should be left in the Disabled mode.

In certain GMA340 installation, a tone-enable strap was on this pin, which may interfere with the PMA450 if PA Enable is active and this pin is grounded.

2.8 Wiring correction

The PMA450 provides the ability to reverse the left and right audio outputs for the pilot and copilot headsets. This is useful in cases where the aircraft is wired wrong, in order to ensure that the IntelliAudio locations are presented correctly to the users.

Note: This setting does not swap the music input left and right. It is recommended that the aircraft is wired in accordance with the installation manual.
3  Restore Normal Operation

**WARNING**
Factory connector MUST BE placed on REAR 2 PINS, as shown before installation.
4 User Setup Mode

This function is available to the user without changing the internal configuration. The information is also contained in the Installation Manual and the Pilot’s guide, but reproduced here for convenience.

To access the user adjustment menus, turn the PMA450 off, and then back on. While the version screen is displayed, push and hold the bottom line-select button (there is an indicator bar in the display indicating that a menu is available). This places the unit into the “User Configurable Mode – home screen”. This allows adjustment for:

- LCD Screen Adjustment
- Rename Switched Inputs
- Bluetooth menus

Note: in this mode, the audio panel functions will be inoperative

4.1.1 Adjust Screen

The first items are adjustments to the Liquid Crystal Display, allowing the installer or user to tailor the contrast and backlight intensity to suit the cockpit conditions, and set the time period before the menus revert to the “home” screen.

There are two screen visibility modes: LCD Brightness & LCD Contrast.

4.1.1.1 Brightness and Contrast

Adjusting either the Brightness or Contrast level requires selecting either of the two line select buttons and then turning the inner knob. Counter clockwise to lower the number (level of Brightness & Contrast) and clockwise to increase the number (level of Brightness & Contrast).

To change the display:

1. Press the line select for the desired item
2. Turn the small, inner knob to change the contrast and brightness as desired. Recommended settings are Brightness 10, and Contrast 5.

LCD will change in real time while adjustments are made.

It will stay in this screen until the menu times out and returns to the adjustment home screen.

4.1.1.2 Display Timeout

This is a feature that allows the end user to adjust how quickly the screen levels menus timeout (revert to main menu).

**NOTE:** A long press (> 1 second) will also back up one menu level.

This allows adjustment of the timeout screen and can be configured from 1 second to 30 seconds when turning the inner knob.

For a user that is unfamiliar with the product, this will give them enough time to learn the system. After being familiar then the user can speed up the timeout screen as needed.

It will stay in this screen until the menu times out and returns to the adjustment home screen.

To exit the home screen and return to normal operation, turn the PMA450 off, and back on again.
4.1.2 Rename “Switched” Inputs

The system is factory set to default as ADF, DME & AUX as shown.

The three inputs are from top to bottom:
1. Switched input #1 J1, Pin 7 wrt Pin 8 (Default ADF)
2. Switched input #2 J1, Pin 21 wrt Pin 22 (Default DME)
3. Switched input #3 J1, Pin 23 wrt Pin 43 (Default AUX)

NOTE: In PMA 450-0200 (No Marker) Switched #1, #2 or #3 can be renamed to MKR for a remote input.

The customer will have access to rename. Maximum 9 letters per line and A thru Z & 0 thru 9 will be available.

- Press the line select for desired input.
- Turn the large outer knob to select the letter to change. A cursor appears under the active letter position.
- Turn the small, inner knob to increment or decrement the letter.
- You can select 9 alphanumeric digits.
- To add a blank space:
  - Blank spaces can’t be added to the end of a string, but you can add a temporary character and go back and change it to a space:
  - TACARADIOA1
  - Change extra “A”s to spaces TAC RAD 1

It will stay in this screen until the menu times out and returns to the adjustment home screen.

Cycle PMA450 power to exit the setup screen.

4.1.3 Bluetooth® menu

The Bluetooth menu allows the user to:

- Reset (remove) all paired devices
- Set or disable a pairing pass code
- Change the PMA450’s device ID

4.1.3.1 Un-pair All

Pressing the line select next to Un-pair All removes all Bluetooth devices. This is used when the pairing of devices becomes unreliable.

4.1.3.2 Pair:

This allows the user to set any desired pass code that users will use to pair Bluetooth devices. Four digits, 1 to 9 can be used.

4.1.3.3 PIN Disable (Version 2.012 and above only)

Some phone will not pair is a Personal Identification Number (PIN) is required. To disable the PIN:

- Enter configuration menu, select Bluetooth.
- Select PIN code for editing. Press PIN button one more time.
- “Bluetooth Reset” will appear on screen. When the menu returns, the PIN code will report “Disabled”.
- To re-enable the PIN code for a different device, press the PIN button.

4.1.3.4 “Bluetooth Reset” will appear on screen. When the menu returns, the last stored PIN code will be shown.

ID:

This allows the user to set the name of the audio panel as it will appear on devices searching for the PMA450. Seven alphanumeric digits are available. Factory default is PMA450, but you could set “N1245,” or “Skyhawk, as an example.”