# GMA 342 pilot's guide





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This manual reflects the operation of GMA 342 units. Some differences in operation may be observed when comparing the information in this manual to earlier or later Mod status levels.

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**CAUTION:** Incorrect aircraft wiring could short the left channel or both channels to ground if a monaural headset is plugged into the stereo jacks. If wired incorrectly, fail-safe operation will not work.

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Part Number	Change Summary	
190-01878-00	Initial release	

Rev	Date	Description	
А	July, 2016	Production Release	
В	September, 2017	Updated compliance statements	
С	February, 2018	Updated labeling error. Added SLA.	

#### **Table of Contents**



Features and Operation	7
Power-Up	8
Mono/Stereo Headsets	8
Left/Right Knobs	8
Transceivers	9
Split-COM Mode	10
Transmit Indications	
Enabling/Disabling Monitored COM Muting	10
Receivers	
Nav Receiver	12
Auxiliary Inputs	12
Marker Beacon Receiver	
Turning Marker Beacon Audio On	14
Muting Marker Beacon Audio	
Deselecting Marker Beacon Audio	
Intercom System (ICS)	
Pilot Isolate Mode	
Crew Isolate Mode	15
Intercom Volume	
Radio Mute Music	15
ICS Mute Music	16
Passenger Muting	
Speaker	
Passenger Address Mode (PA Mode)	
Split-PA Mode	17
3D Audio	17
Enabling 3D Audio	
Clearance Recorder and Player	19
Entertainment Inputs	21
Front Panel Jack	22
Music Effects	22
Entertainment Muting	23
Enabling/Disabling Muting	23
Fail-Safe Operation	24

# GARMIN

# FEATURES AND OPERATION

The GMA 342 Audio Panel provides the traditional audio selector functions of microphone and receiver audio selection. The Audio Panel includes an intercom system (ICS), a marker beacon receiver, a COM clearance recorder, and a 3.5 mm music or phone jack. Ambient noise from the aircraft radios is reduced by Avionics Squelch (ASQ). When no audio is detected, ASQ processing further reduces the amount of background noise. Intercom squelch threshold adjustments are handled automatically by the system.

Pushbutton keys control audio selection. When a key is selected, a green annunciator on the key is illuminated. Annunciator brightness is adjusted automatically by photocell dimming. Key brightness is adjusted by the radio dimming bus control. Three Aux inputs are available for additional avionics or audio devices.

Upon installation, the unit may be configured in various ways depending on aircraft type and the needs of the pilot.



Front Panel Jack

GMA 342



## **POWER-UP**

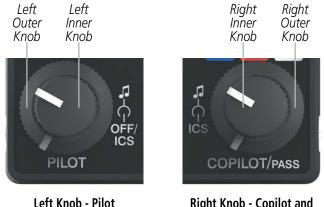
The GMA 342 performs a self-test during power-up. During the self-test all Audio Panel annunciator lights illuminate for approximately two seconds. Once the self-test is completed, most of the settings are restored to those in use before the unit was last turned off.

# **MONO/STEREO HEADSETS**

Stereo headsets are recommended when using the GMA 342. Using a monaural headset in a stereo jack shorts the right headset channel output to ground. While this does not damage the Audio Panel, a person listening on a monaural headset hears only the left channel in both ears. If a monaural headset is used at one of the passenger positions, any other passenger using a stereo headset hears audio in the left ear only.

# **LEFT/RIGHT KNOBS**

The **Left Inner Knob** powers-off the unit, and is used to control pilot ICS volume. The **Left Outer Knob** controls pilot music volume. The **Right Inner Knob** controls copilot and passenger ICS volume. The **Right Outer Knob** controls the copilot and passenger music volume.



Right Knob - Copilot and Passenger Volume Controls

Volume Controls



Function	Action	Visual/Tactile Feedback	Aural Feedback
Power OFF Audio Panel	Turn <b>Left Inner Knob</b> to full counter-clockwise position	All backlight and annunciator LEDs turn off	Left Inner Knob clicks
Pilot ICS Volume	Turn <b>Left Inner Knob</b> right/left to increase/ decrease volume	Minimum/maximum volume is reached at full counter-clockwise/ clockwise position	Pilot ICS volume increases/ decreases
Pilot Music Volume	Turn <b>Left Outer Knob</b> right/left to increase/ decrease volume	Minimum/maximum volume is reached at full counter-clockwise/ clockwise position	Pilot Music volume increases/ decreases
Copilot/ Passenger ICS Volume	Turn <b>Right Inner Knob</b> right/left to increase/ decrease volume	Minimum/maximum volume is reached at full counter-clockwise/ clockwise position	Copilot and Passenger ICS volume increases/ decreases
Copilot/ Passenger Music Volume	Turn <b>Right Outer Knob</b> right/left to increase/ decrease volume	Minimum/maximum volume is reached at full counter-clockwise/ clockwise position	Copilot and Passenger Music Volume increases/ decreases

#### Left/Right Knob Functions

## TRANSCEIVERS

Audio from the #1 or #2 COM receiver can be selected independently by pressing the respective Key(s) (**COM1** or **COM2**). Pressing **COM1 MIC** or **COM2 MIC** selects the #1 or #2 transmitter and simultaneously selects the related COM receiver (COM1 or COM2) allowing received audio to be heard. The other COM receiver can be added by pressing the respective key.



By default, while transmitting on a COM channel (as selected with the **COM1 MIC** and **COM2 MIC** keys), both the transmitting and receiving audio are heard on the COM channel. The GMA 342 can be configured to instead mute receiving audio on a transmitting COM channel. A Garmin authorized service center can make changes to the default configuration.

#### **SPLIT-COM MODE**

**NOTE:** Split COM performance is affected by the distance between the COM antennas and the separation of the tuned frequencies. If the selected COM frequencies are too close together, interference may be heard during transmission on the other radio.

During Split-COM operation, both the pilot and the copilot can transmit simultaneously over separate radios. The pilot uses COM1 and the copilot uses COM2

Pressing both **MIC** Keys simultaneously initiates Split-COM Mode (i.e., COM1/COM2). The respective COM1/COM1 MIC and COM2/COM2 MIC annunciators are illuminated indicating Split-COM operation. Split-COM operation is cancelled by pressing one of the selected MIC Keys again.

## TRANSMIT INDICATIONS

During COM transmission, the active transceiver (MIC1 or MIC2) Key Annunciator flashes approximately once per second.

During Split-COM transmission, the MIC1 annunciator flashes when the pilot's microphone PTT is pressed. The MIC2 annunciator flashes when the copilot's microphone PTT is pressed.

## **ENABLING/DISABLING MONITORED COM MUTING**

Press and hold **COM1** or **COM2** to enable/disable monitored COM muting during reception of audio from the COM radio selected for transmission. The aural message **"Monitor Mute Enabled/Disabled"** is heard.





Function	Action	Key Annu	inciations
<b>COM Selection:</b> Toggle between COM enabled and COM disabled (the audio from the current MIC selected COM is always enabled and cannot be disabled).	Press the corresponding <b>COM</b> Key.	COM1 COM Enabled	COM1 COM Disabled
<b>MIC Selection:</b> Selects the COM used to transmit during Push-to-Talk (PTT).	Press the corresponding <b>MIC</b> Key. The last MIC pressed remains selected and deselects all others.	COM1 COM1 COM1 MIC	COM2 COM2 COM2 MIC
<b>Transmit Indication:</b> Audio is sent from the corresponding Crew MIC to the selected COM. *	Push-to-Talk (PTT) keyed.	COM1 COM1 COM1 MIC	MIC in-key annunciator flashes.
Split-COM Mode: The pilot transmits on COM1 and the copilot transmits on COM2 independently. * The pilot has priority when transm	Simultaneously press COM1 MIC and COM2 MIC keys.	COM1 COM1 COM1 MIC	COM2 COM2 COM2 MIC

on the same COM.

## Transceiver Key Functions



## RECEIVERS

#### NAV RECEIVER

Pressing the **NAV1** and/or **NAV2** Key(s) selects/deselects the receiver audio for the corresponding navigation radio source. The selected audio source can be heard over the headset and the speaker (if selected). All radios can be selected individually or simultaneously.



Selecting a NAV Radio Receiver

#### **AUXILIARY INPUTS**

The GMA 342 has 3 AUX inputs. There are two keys on the unit for **AUX1** and **AUX2**. Pressing the **AUX1** key selects or deselects both the AUX1 and AUX3 receivers. Pressing the **AUX2** key selects or deselects only the AUX2 receiver.



**Selecting an Auxiliary Input** 



## **MARKER BEACON RECEIVER**

The marker beacon receiver detects any marker beacon signal within the reception range of the aircraft.

When a marker beacon signal is detected, the lamps illuminate, and an associated keyed-tone is heard when MKR audio is selected. Marker beacon lamps operate independently of any audio selection and cannot be turned off.





Marker Beacon Key & Lamps

**HI SENS Annunciator** 

The marker beacon signal sensitivity threshold can be set to either a regular or high sensitivity. To toggle between the two, press and hold the **MKR/MUTE** Key for 1 second. The HI SENS annunciator illuminates when signal sensitivity is set to high.

The receiver detects the three marker tones (outer, middle, and inner).

Audio Frequency	Audio Keying	Lamp Actuated
400 Hz (Outer)		Blue
1300 Hz (Middle)		Amber
3000 Hz (Inner)	•••••	White

The GMA 342 provides three states of marker beacon operation; On, Muted, and Deselected. The **MKR/MUTE** key annunciator indicates when marker beacon audio is selected. Marker beacon audio is not heard when the annunciator is off or when the annunciator is on with the marker beacon audio muted.



#### TURNING MARKER BEACON AUDIO ON

With the MKR/MUTE annunciator off, press the **MKR/MUTE** Key to activate marker beacon audio and illuminate the MKR/MUTE annunciator.

#### **MUTING MARKER BEACON AUDIO**

During marker beacon audio reception, press the **MKR/MUTE** Key to mute the audio. The MKR/MUTE annunciator remains lit, but the current marker tone is silenced. Audio muting deactivates automatically and marker beacon audio is heard when the next marker beacon signal is received.

#### DESELECTING MARKER BEACON AUDIO

To deselect marker beacon audio, press the **MKR/MUTE** Key twice during marker beacon reception or once if a marker beacon signal is not detected.

## **INTERCOM SYSTEM (ICS)**

The GMA 342 includes a three-position intercom system (ICS), two MUSIC inputs, and one telephone/entertainment input for the pilot, copilot and passengers. The intercom provides Pilot and Crew audio isolation.



#### **Intercom Controls**



**NOTE:** The PILOT and CREW ICS ISOLATION states are exclusive. Both cannot be active at the same time. When neither Pilot or Crew are active, the unit is in All ICS mode. In this mode, the pilot, copilot, and passengers communicate with each other.



## **PILOT ISOLATE MODE**

Pressing the **PILOT** 'ICS ISOLATION' Key isolates the pilot from all other ICS positions (copilot and passengers). The copilot and passengers share communication between themselves but cannot communicate with the pilot. A solid annunciation of the in-key annunciator indicates PILOT ICS ISOLATION is active.

## **CREW ISOLATE MODE**

Pressing the **CREW** 'ICS ISOLATION' Key places the pilot and copilot on a common ICS communication channel. The passengers are on their own intercom channel and can communicate with each other, but cannot communicate with the pilot and copilot. A solid annunciation of the inkey annunciator indicates CREW ICS ISOLATION is active.

#### **INTERCOM VOLUME**

The knobs on either side of the GMA 342 control intercom and music volume independently. The left inner and outer knobs are dedicated to the audio levels for the pilot headset; the right inner and outer knobs control audio levels for not only the copilot but also any passenger headsets. The inner, smaller knobs on both sides are used to control intercom volume for the receiving headsets. The outer, larger knobs are used to control music volume.

The left inner knob can be used to turn off the GMA 342 audio panel, by turning fully counter-clockwise until the knob clicks. All backlight and annunciator LEDs will turn off.

The position marks on all four knobs are not night-time visible.

## **RADIO MUTE MUSIC**

Press and hold the **MUSIC** Key to enable or disable muting of music channel 1 and music channel 2 when radio (i.e., COM, NAV, or AUX) audio is active.



#### **ICS MUTE MUSIC**

Press and hold the **AUX2** Key to enable or disable muting of music audio when intercom audio is active.

## PASSENGER MUTING

Press and hold **AUX1** to enable/disable passenger muting during COM audio reception. The aural message "Passenger Mute Enabled/Disabled" is heard.

## **SPEAKER**



**NOTE:** Speaker audio turns off in circumstances where aircraft power falls below 11 volts.

All of the radios can be heard over the cabin speaker. Pressing the **SPKR** Key selects and deselects the cabin speaker. Speaker audio is muted when the PTT is pressed. Certain aural alerts and warnings (autopilot, traffic, altitude) are always heard on the speaker, even when the speaker is not selected.



Speaker Key

## PASSENGER ADDRESS MODE (PA MODE)

Press and hold the **SPKR** Key for 1 second to initiate Passenger Address Mode. PA Mode is annunciated by a rapid blinking of the SPKR annunciator. When in PA Mode the crew can use the PTT "Push-to-Talk" button to deliver announcements over the speaker and to the passenger headsets.



#### **SPLIT-PA MODE**

During Split-PA Mode the pilot can continue to use the COM1 for transmission while the copilot delivers PA announcements. To initiate Split-PA Mode, first enter Split-COM Mode by pressing both **MIC** Keys simultaneously, then press and hold the **SPKR** Key for 1 second.

## **3D AUDIO**

3D Audio is useful when multiple audio sources are present. By using different responses in each ear, 3D audio processing creates the illusion that each audio source is coming from a unique location or seat position.

Because this feature uses different signals for left and right channels, it requires wiring for stereo intercom and stereo headsets. If 3D audio is activated when mono headsets are in use, the listener will still hear all audio sources; however, there is no benefit from location separation.

With a single COM selected and 3D Audio enabled, the listener hears the audio source at the 12 o'clock position. If both COMs are selected, the listener hears COM1 at 11 o'clock and COM2 at the 1 o'clock position. All other intercom positions are processed to sound like their relative seat location. By default, the GMA 342 assumes the pilot sits in the left seat. A Garmin authorized service center can make changes to the default configuration.

#### **ENABLING 3D AUDIO**

Press and hold the **PILOT** Key to toggle 3D audio processing on and off for all headset positions. When 3D Audio is enabled, the aural message "3D audio left" is heard in the left ear followed by "3D audio right" in the right ear. If the aural messages are not heard in only the left and then the right ear respectively, the cause may be aircraft wiring or headset settings. Refer to the following table if a headset or aircraft wiring problem is suspected.



3D Audio Troubleshooting			
Symptom(s)	Cause(s)	Solution(s)	
"3D audio left" message heard in	<ol> <li>Mono headset in use</li> </ol>	1) Use a stereo headset	
both ears. "3D audio right" message not heard	2) Stereo headset in use with mono/ stereo switch set to 'mono'	<ol> <li>Set mono/stereo switch on headset to 'stereo'</li> </ol>	
	<ol> <li>Aircraft wiring has left audio wired to both left and right channels of stereo headset jack</li> </ol>	<ul> <li>If after checking solutions #1 and #2 see a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.</li> </ul>	
"3D audio left" message heard	1) Mono headset in use	1) Use a stereo headset	
in both ears, followed by "3D audio right" message heard in	2) Stereo headset in use with mono/ stereo switch set to mono	2) Set mono/stereo switch on headset to 'stereo'	
both ears	<ol> <li>Incorrect aircraft wiring (left/right shorted together)</li> </ol>	<ul> <li>If after checking solutions #1 and #2 see a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.</li> </ul>	
"3D audio right" message heard in both ears. "3D audio left" not heard	<ol> <li>Incorrect aircraft wiring (right channel used for mono instead of left or left/right swapped)</li> </ol>	<ol> <li>See a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.</li> </ol>	



3D Audio Troubleshooting			
"3D audio left" message heard in right ear only followed by "3D audio right" message heard in left ear only	<ol> <li>Stereo headset is on backwards</li> </ol>	<ol> <li>Verify correct orientation from the left/right indication on each side of the headset or the position of the boom MIC (usually attached on left side). If the headset is backwards, the left/right position information will be swapped.</li> </ol>	
	2) Incorrect aircraft wiring (left/right channels swapped)	<ol> <li>See a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.</li> </ol>	
"3D audio left" message heard in left ear only, no audio heard in right ear.	1) Aircraft wired for mono intercom	<ol> <li>See a service center to wire the installation for stereo headsets.</li> </ol>	
"3D audio right" message heard in right ear only, no audio heard in left ear	<ol> <li>Incorrect aircraft wiring (right channel used for mono instead of left, or left/right swapped)</li> </ol>	<ol> <li>See a service center as soon as possible to inspect/correct wiring. This wiring fault can cause fail-safe audio not to function.</li> </ol>	

**3D Audio Troubleshooting** 

## **CLEARANCE RECORDER AND PLAYER**

The GMA 342 contains a digital clearance recorder that records up to 60 seconds of the selected COM radio signal. Recorded COM audio is stored in separate memory blocks. Once 60 seconds of recording time have been reached, the recorder begins recording over the stored memory blocks, starting from the oldest block.

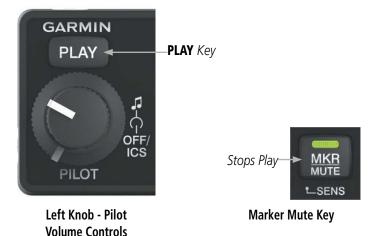
Pressing the **PLAY** Key once plays the latest recorded memory block.



Pressing the **MKR/MUTE** Key during play of a memory block stops play. If a COM signal is detected during play of a recorded memory block, play is halted.

Pressing the **PLAY** Key while audio is playing begins playing the previously recorded memory block. Each subsequent press of the **PLAY** Key selects the previously recorded memory block.

Powering off the unit automatically clears all recorded blocks.





# **ENTERTAINMENT INPUTS**

The GMA 342 provides three stereo entertainment inputs and two telephone inputs.

• Press the **MUSIC** Key to turn music on/off for all positions. The **? SEL** Key selects the music source for all positions. The pilot can choose not to hear music by either turning down the Pilot music volume or enabling **PILOT** 'ICS ISOLATION'. The copilot and passengers can choose not to hear music by turning down the Copilot/Passenger music volume. Refer to the following table on **MUSIC** and **? SEL** Key Functions for more information.

• The **TEL** Key controls a telephone or entertainment device connected to the rear of the audio panel or to the Front Panel Jack. Distribution is controlled by ICS isolation state. When the **TEL** Key is selected, the pilot is always connected to the telephone interface. Other ICS positions are connected to the telephone interface if they hear the Pilot in that ICS state.

Function	Action	Key Annunciations	Notes
Turn MUSIC ON	Press the <b>MUSIC</b> Key (when not selected).	MUSIC 1 2 3 , SEL	<b>MUSIC</b> in-key annunciator turns green.
Turn MUSIC OFF	Press the <b>MUSIC</b> Key (when selected).	MUSIC 1 2 3 ,J SEL	<b>MUSIC</b> in-key annunciator turns OFF (source selection annunciators are unaffected).
Change MUSIC Source	Press the SEL Key.	MUSIC 1 1 2 3 ,JSEL ,JSEL ,JSEL	Music source selection is cyclic, moving from <b>1</b> to <b>2</b> to <b>3</b> and then back to <b>1</b> .

MUSIC and J SEL Key Functions



#### FRONT PANEL JACK

The Front Panel Jack is a 3.5 mm stereo jack that can be used as an entertainment input or a telephone input. When a telephone is connected to the Front Panel Jack, the telephone connected to the rear of the audio panel is disabled.

To use the Front Panel Jack as a music input, press the **MUSIC** Key and use the **FSEL** Key to select music source **3**. To use as a telephone input, press the **TEL** Key. The telephone function overrides the music function. **TEL** must be enabled for intercom audio to be sent to the telephone device

#### **MUSIC EFFECTS**

The following music effects are available:

- **Music Equalizer:** Press the **A SEL** Key and the **PILOT** Key simultaneously to change the selected Music Equalizer setting. Available settings include: Disabled, Classical, Pop, or Rock.
- **Music Bass Boost:** Press the <code>fSEL</code> Key and the **CREW** Key simultaneously to change the selected Music Bass Boost setting. Available settings include: Disabled, Medium, or High.



#### **ENTERTAINMENT MUTING**

Entertainment muting can be enabled or disabled by the user, however it is always muted during alerts.

#### **ENABLING/DISABLING MUTING**

Press and hold the **MUSIC** Key for 1 second to toggle radio muting of music on and off. The aural message **"Radio Mute Music Enabled/Disabled"** is heard.

Press and hold the **AUX2** button for one second to toggle intercom muting of music on and off. The aural message **"Intercom Mute Music Enabled/Disabled"** is heard.



# **FAIL-SAFE OPERATION**

If there is a failure of the GMA 342 or when power is not applied, a fail-safe circuit connects the pilot's headset and microphone directly to the COM1 transceiver. Audio is not available on the speaker during Fail-safe operation.

Function	Key(s)	Action
Monitor Mute	COM1 COM2	Press and hold for 1 second
Radio Mute Intercom	MUSIC	Press and hold for 1 second
Passenger Mute	AUX1	Press and hold for 1 second
Intercom Mute Music	AUX2	Press and hold for 1 second
3D Audio		Press and hold for 1 second
Passenger Address	SPKR PA	Press and hold for 1 second
Marker Beacon High Sens	MKR MUTE	Press and hold for 1 second
Split COM	COM1 MIC and	Press keys simultaneously
Music Equalizer	SEL and PILOT	Press keys simultaneously
Music Bass Boost	SEL and CREW	Press keys simultaneously

#### Alternate Key Function Quick Reference



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