



# GMA 340

*Audio Panel*



pilot's guide

The diagram shows the GMA 340 radio control panel with the following numbered callouts:

- 1: A/M (Auto/Monitor) button
- 2: MKR/MUTE button
- 3: COM 1 button
- 13: COM 2 button
- 19: COM 3 button
- 18: NAV 1 button
- 16: NAV 2 button
- 17: DME button
- ADF (Automatic Direction Finder) button
- GMA 340 TEST button
- 5: PILOT volume knob
- 6: HI/LO selector switch
- 4: SENS (Sensitivity) button
- 14: COM 1 MIC button
- 15: COM 2 MIC button
- 12: COM 3 MIC button
- 11: COM 1/2 button
- 10: SPKR (Speaker) button
- 9: CABIN AUDIO button
- 8: PA (Public Address) button
- 7: PILOT ICS ISOLATION button
- 6: CREW ICS ISOLATION button

The diagram shows the GMA 340 radio control panel with the following numbered callouts:

- 1: GARMIN logo
- 2: AOM indicator
- 3: MKR/MUTE button
- 4: SENS button
- 5: PILOT volume knob
- 6: HI/LO indicator
- 7: COPILOT volume knob
- 8: GMA 340 TEST button
- 9: CREW indicator
- 10: PA button
- 11: SPKR button
- 12: COM 3 MIC button
- 13: COM 2 MIC button
- 14: COM 1 MIC button
- 15: COM 3 button
- 16: NAV 1 button
- 17: NAV 2 button
- 18: ADF 1 button
- 19: ADF 2 button

The diagram shows the GMA 340 TEST panel with the following numbered callouts:

- 1: GARMIN logo
- 2: AOM indicator
- 3: MKR/MUTE indicator
- 4: SENS indicator
- 5: PILOT volume knob
- 6: PILOT label
- 7: COPILOT volume knob
- 8: HI/LO indicator
- 9: CREW indicator
- 10: PA indicator
- 11: CABIN AUDIO indicator
- 12: COM 1/2 indicator
- 13: COM 1 indicator
- 14: COM 2 MIC indicator
- 15: COM 3 MIC indicator
- 16: NAV 1, NAV 2, DME, and ADF indicators
- 17: GMA 340 TEST label

### **Function Selection Switches**

The left small knob (5, 7) on all units controls ON/OFF function.

- |                     |     |  |
|---------------------|-----|--|
| <b>MKR<br/>BCN</b>  | 1.  | Marker Beacon Lamps  |
|                     | 2.  | Marker Beacon Receiver Audio Select/Mute Button                          |
|                     | 3.  | Marker Beacon Receiver Sensitivity Indicator LED's                       |
|                     | 4.  | Marker Beacon Receiver Sensitivity Selection Button                      |
| <b>ICS</b>          | 5.  | Pilot Intercom System (ICS) Volume (Also Passenger Volume on 340H)       |
|                     | 6.  | Pilot ICS Voice Activated (VOX) Intercom Squelch Level                   |
|                     | 7.  | Copilot and Passenger ICS Volume Control (Pull out for Passenger Volume) |
|                     | 8.  | Copilot and Passenger VOX Intercom Squelch Level                         |
|                     | 9.  | Crew Isolation Intercom Mode Button                                      |
|                     | 10. | Pilot Isolation Intercom Mode Button                                     |
| <b>COM/<br/>NAV</b> | 11. | Passenger Address (PA) Function Button                                   |
|                     | 12. | Speaker Function Button  |
|                     | 13. | Transceiver Audio Selector Buttons (COM 1, COM 2, COM 3)                 |
|                     | 14. | Transmitter (Audio/Mic) Selection Buttons                                |
|                     | 15. | Split COM Button (Not Available in Dual ADF)                             |
|                     | 16. | Aircraft Radio Audio Selection Buttons (NAV 1, NAV 2, DME, ADF 1, ADF 2) |
|                     | 17. | Annunciator Test Button  |
|                     | 18. | Locking Screw Access   |
|                     | 19. | Photocell – Automatic Annunciator Dimming                                |

### **On, Off, and Failsafe Operation**

The GMA 340 is powered off when the left small knob (5, 7) is rotated fully CCW into the detent. To turn the unit on rotate the knob clockwise past the click. The left small knobs also functions as the pilot or copilot's ICS volume control on the appropriate unit. A failsafe circuit connects the pilot's headset and microphone directly to COM 1 in case the power is interrupted or the unit is turned off.

### **Lighting**

LED Button annunciator and marker beacon lamp intensity are controlled automatically by a built-in photocell on the front panel. Nomenclature backlighting is controlled by the aircraft dimmer buss.

### **Transceivers**



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*Audio level is controlled by the selected COM radio volume control.*

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Selection of either COM 1, COM 2, or COM 3 (13) for both MIC and audio source is accomplished by pressing either COM 1 MIC, COM 2 MIC, or COM 3 MIC (14). The active com audio is always heard on the headphones.

Additionally, each audio source can be selected independently by pressing COM 1, COM 2, or COM 3 (13). When selected in this way, they remain active as audio sources regardless of which transceiver has been selected for microphone use.

When a microphone is keyed, the active transceiver's MIC button LED blinks approximately once per second to indicate that the radio is transmitting.

### **Split COM (Not Available on Dual ADF)**

Pressing the COM 1/2 button (15) activates the Split COM function. When this mode is active, COM 1 is dedicated solely to the pilot for MIC/audio while COM 2 is dedicated to the copilot for MIC/audio. The pilot and copilot can simultaneously transmit in this mode over separate radios. Both pilots can still listen to COM 3, NAV 1, NAV 2, DME, ADF, and MKR as selected. The Split COM mode is cancelled by pressing the COM 1/2 button a second time.

When in the Split COM mode the copilot may make PA announcements while the pilot continues using COM 1 independently. When the PA button is pressed after the Split COM mode is activated, the copilot's mic is output over the cabin speaker when keyed. A second press of the PA button returns the copilot to normal Split COM operation.



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*If the COM radios utilize a "transmit interlock" system, the Split COM function may require that this feature is enabled. Refer to the radio's installation manual for guidance. GARMIN makes no expressed or implied guarantees regarding the suitability of the Split COM feature in a given installation.*

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### **Com Swap Function**

The GMA 340 allows the use of a remote mounted switch (typically on the yoke) to alternately transfer the active microphone back and forth between COM 1 and COM 2. Pressing the remote switch will have no effect if COM 3 is the active transceiver. Ask your installing agency for details.

### **Aircraft Radios & Navigation**



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*Audio level is controlled by the selected NAV radio volume control.*

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Pressing NAV 1, NAV 2, DME, ADF 1, ADF 2(16), or MKR (2) (see MKR Beacon Receiver, page 8) selects each audio source. A second button press deselects the audio.

In addition, the GMA 340 provides inputs for an unswitched aircraft radio (TEL RINGER) and an unmuted, unswitched aircraft radio (ALT WRN).

### **Speaker Output**

Pressing the SPKR button (12) selects aircraft radios over the cabin speaker. The speaker output is muted when a COM microphone is keyed. The GMA 340 speaker output level can be adjusted by your installing agency.

### **PA Function**

The PA mode is activated by pressing the PA button (11). Then, when either the pilot's or copilot's microphone is keyed, the corresponding mic audio is heard over the cabin speaker. If the SPKR button is also active, then any selected speaker audio is muted while the microphone is keyed. The SPKR button does *not* have to be previously active in order to use the PA function. Pilot and copilot PA microphone speaker levels are adjustable by your installing agency.

### **Auxiliary Entertainment Inputs**

The GMA 340 and 340H provide two stereo entertainment inputs: MUSIC 1 and MUSIC 2. The 340 Dual ADF has only MUSIC 1. MUSIC 1 is soft-muted during all aircraft radio activity and normally during ICS activity. MUSIC 2 is a non-muted input. These inputs are compatible with popular portable entertainment devices such as cassette tape or CD players. The headphone outputs of these devices are used and plugged into MUSIC 1 or MUSIC 2. Two 3.5 mm stereo phone jacks should be installed in a convenient location for this purpose. MUSIC 1 and MUSIC 2 have characteristics that are affected by the active intercom mode. Refer to the table on page 7.

**Intercom System (ICS) (Pilot and Copilot functions are reversed on the 340H)**

Intercom volume and squelch (VOX) are adjusted using the following front panel knobs:

- **LEFT SMALL KNOB** — Unit ON/OFF power control and Pilot ICS volume. Full CCW DETENT position is OFF.
- **LEFT LARGE KNOB** — Pilot ICS mic VOX squelch level. CW rotation increases the amount of mic audio (VOX level) required to break squelch. Full CCW is the “hot mic” position.
- **RIGHT SMALL KNOB** — IN position: Copilot ICS volume. OUT position: Passenger ICS volume.
- **RIGHT LARGE KNOB** — Copilot and passenger mic VOX squelch level. CW rotation increases the amount of mic audio (VOX level) required to break squelch. Fully CCW is the “HOT MIC” position.

Each of the six microphone inputs have dedicated VOX circuits ensuring that only the active microphone(s) is/are heard when squelch is broken. This represents a vast improvement over the party-line systems and reduces the amount of background noise in the headphones during cockpit communications. After the operator has stopped talking, the intercom channel remains momentarily open to avoid closure between words or normal pauses.

The GMA 340 provides three intercom modes: PILOT, CREW and ALL. The mode selection is accomplished using the PILOT and/or CREW buttons.

Pressing a mode button activates the corresponding ICS mode. Pressing again deactivates the mode. The operator can switch directly from PILOT to CREW or from CREW to PILOT by pressing the other mode button. The ALL mode is active when neither PILOT nor CREW LED are lit. To switch from PILOT to CREW mode, press the CREW button; from CREW to PILOT, press the PILOT button. An LED ON indicates the isolation mode is active.

- **PILOT mode** isolates the pilot from everyone else and dedicates the aircraft radios to the pilot exclusively. The copilot and passengers share communication between themselves but cannot communicate with the pilot or hear the aircraft radios.
- **CREW mode** 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 crew or hear the aircraft radios.
- **ALL mode** allows full intercom communication between everyone plugged in to the GMA 340. Aircraft radios are heard by all.
- **MUSIC 1 and MUSIC 2** stereo entertainment inputs are affected by the intercom mode selected.

The following table summarizes the ICS operation for the different modes supported by the GMA 340:

| MODE                   | PILOT HEARS   | COPILOT HEARS   | PASSENGER HEARS   | MUSIC 1 MUTING TRIGGERED BY   |
|------------------------|---|---|---|---|
| <b>PILOT (LED LIT)</b> | Selected Radios.<br>Pilot.  | Copilot.<br>Passengers.<br>MUSIC 1.                               | Passengers.<br>Copilot.<br>MUSIC 1.                               | Copilot or passenger ICS activity.  |
| <b>CREW (LED LIT)</b>  | Selected Radios.<br>Pilot.<br>Copilot.<br>MUSIC 1.                | Selected Radios.<br>Copilot. Pilot.<br>MUSIC 1.                   | Passengers.<br>MUSIC 2.<br>(MUSIC 1 in Dual ADF)                  | Aircraft radio activity.<br>MKR activity.<br>Pilot or Copilot ICS activity. |
| <b>ALL LED's OFF)</b>  | Selected Radios.<br>Pilot.<br>Copilot.<br>Passengers.<br>MUSIC 1. | Selected Radios.<br>Pilot.<br>Copilot.<br>Passengers.<br>MUSIC 1. | Selected Radios.<br>Pilot.<br>Copilot.<br>Passengers.<br>MUSIC 1. | Aircraft radio activity.<br>MKR activity.<br>ICS activity.                  |

MUSIC 1 is normally muted during ICS activity. However an installation option is available to disable ICS MUTE. Then muting of MUSIC 1 will not occur due to ICS activity. A panel mounted switch may be installed for this function. The MUSIC 1 mute trip level is adjustable by the installing agency.

#### **Mono/Stereo Headset**

The use of stereo headsets is highly recommended.



*If monaural headsets are plugged into stereo jacks that do not have a switch installed, the unit will not be damaged.*



*If the pilot uses a monaural headset in a stereo jack, no audio will be heard during failsafe operation. When using a monaural headset the pilot's jack must be equipped with a stereo/mono switch and it must be set to the 'mono' position for proper failsafe operation.*

A person listening on a monaural headset will hear only the left channel from the GMA 340 in both ears. If a monaural headset is used at one of the passenger positions, any other passenger listening on a stereo headset will hear audio in their left ear only, unless their headset has a stereo/mono switch and it is set for mono.

### **Marker Beacon Receiver**

The marker beacon is used as part of an ILS approach, and in certain instances, to identify an airway. In addition to the normal marker beacon functions, the GMA 340 provides an audio muting function. The lamps illuminate, and an associated keyed-tone is heard when MKR audio is selected, when the aircraft passes over a 75 MHz marker beacon transmitter.

| Audio Frequency | Audio Keying    | Lamp Actuated        |
|-----------------|-----------------|----------------------|
| 400 Hz          | ■ ■ ■ ■ ■ ■ ■ ■ | Blue (Outer)         |
| 1300 Hz         | ● ■ ● ■ ● ■ ● ■ | Amber (Middle)       |
| 3000 Hz         | ● ● ● ● ● ● ● ● | White (Airway/Inner) |

The lamp and audio keying for ILS approach operation are summarized below:

The marker beacon audio level is aligned at the factory to produce its rated audio output. However, the output level is adjustable by your avionics installing agency.

The GMA 340's marker beacon receiver controls are located on the left side of the front panel (1 through 4). The SENS button selects either high or low sensitivity as indicated by the HI or LO LED being lit. Low sensitivity is used on ILS approaches while high sensitivity allows operation over airway markers or to get an earlier indication of nearing the outer marker during an approach.

The marker audio is selected initially by pressing the MKR/mute button (2). If no marker beacon signal is received, then pressing again will deselect the marker audio. This operation is similar to selecting any other audio source on the GMA 340. However, if the second button press occurs while a marker beacon signal is received, then the marker audio is muted but not deselected. The button's LED will remain lit to indicate that the source is still selected.

The GMA 340's **SmartMute™** function then monitors the marker signal and automatically unmutes the audio when the current marker signal is no longer being received.

In all cases, the marker beacon lamps operate independently of any audio selection and cannot be turned off. The GMA 340 can drive external marker lamps if required.



## **Limited Warranty**

GARMIN Corporation warrants this product to be free from defects in materials and workmanship for one year from the date of purchase. GARMIN will, at its sole option, repair or replace any components which fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor. The customer is, however, responsible for any transportation costs. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs.

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To obtain warranty service, call the GARMIN Customer Service department (913/397.8200) for a returned merchandise tracking number. The unit should be securely packaged with the tracking number clearly marked on the outside of the package, and sent freight prepaid and insured to a GARMIN warranty service station. A copy of the original sales receipt is required as the proof of purchase for warranty repairs. GARMIN retains the exclusive right to repair or replace the unit or software or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.





**GMA 340**



**GMA 340 Dual ADF**



**GMA 340H**



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