DA 40 AFM
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DA 40 F AFM
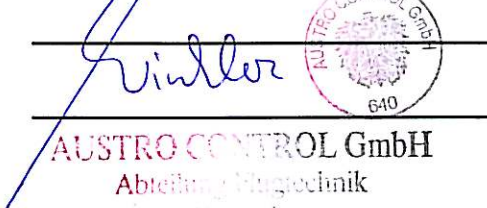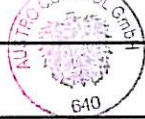
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Supplement A18
Audio Panel, GMA 340

SUPPLEMENT A18
TO THE AIRPLANE FLIGHT MANUAL
DA 40, DA 40 D, DA 40 F

AUDIO PANEL
GMA 340
GARMIN

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0.1   RECORD OF REVISIONS

Rev. No.	Reason	Chap-ter	Page(s)	Date of Revision	Approval Note	Date of Approval	Date Inserted	Signature
1	OÄM 40-136	all	all	17-Feb-2003				
2	OÄM 40-221 EASA Statement	all	all	22-Jun-2005				

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0.2   LIST OF EFFECTIVE PAGES

Chapter	Page	Date
0	9-A18-0	22 Jun 2005
	9-A18-1	22 Jun 2005
	9-A18-2	22 Jun 2005
	9-A18-3	22 Jun 2005
1, 2, 3, 4A, 4B	9-A18-4	22 Jun 2005
5, 6	9-A18-5	22 Jun 2005
7	9-A18-5	22 Jun 2005
	9-A18-6	22 Jun 2005
	9-A18-7	22 Jun 2005
	9-A18-8	22 Jun 2005
	9-A18-9	22 Jun 2005
	9-A18-10	22 Jun 2005
	9-A18-11	22 Jun 2005
	9-A18-12	22 Jun 2005
	9-A18-13	22 Jun 2005
8	9-A18-13	22 Jun 2005

0.3 TABLE OF CONTENTS

1. GENERAL

This Supplement supplies the information necessary for the efficient operation of the airplane when the Audio Panel GMA 340 is installed. The information contained within this Supplement is to be used in conjunction with the complete AFM.

This Supplement is a permanent part of this AFM and must remain in this AFM at all times when the GMA 340 is installed.

2. LIMITATIONS

No change.

3. EMERGENCY PROCEDURES

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.

4A. NORMAL PROCEDURES

No change.

4B. ABNORMAL PROCEDURES

No change.

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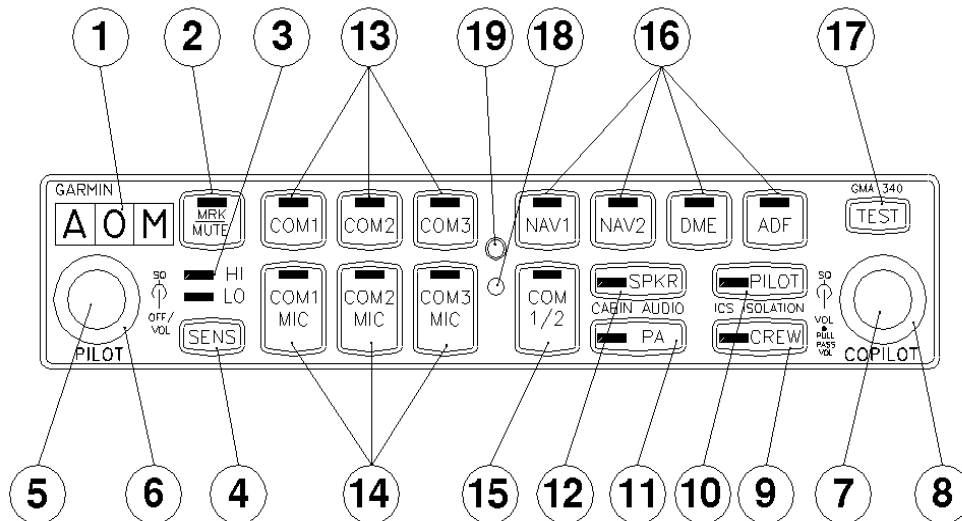**Audio Panel, GMA 340**

5. PERFORMANCE

No change.

6. MASS AND BALANCE

Upon removal or installation of the GMA 340 the change of empty mass and corresponding center of gravity of the airplane must be recorded according to Chapter 6 of the Airplane Flight Manual.

7. DESCRIPTION OF THE AIRPLANE AND ITS SYSTEMS

7.14 AVIONICS

OPERATION

FRONT PANEL CONTROLS

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

5. Unit On/Off, Pilot Intercom System (ICS) Volume

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

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

16. Airplane Radio Audio Selection Buttons (NAV 1, NAV 2, DME, ADF)

17. Annunciator Test Button

18. Locking Screw Access

19. Photocell - Automatic Annunciator Dimming

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ON, OFF, AND FAILSAFE OPERATION

The GMA 340 is powered off when the left small knob (item 5) is rotated fully counter-clockwise into the detent. To turn the unit on rotate the knob clockwise past the click. The knob then functions as the pilot´s ICS volume control. 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

The intensity of the LED button annunciator and marker beacon lamps are controlled automatically by a built-in photocell (19) on the front panel. Nomenclature backlighting is controlled by the airplane instrument light dimmer.

TRANSCEIVERS

NOTE

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

NOTE

COM 3 is not used in the DA 40 installation.

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

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

When a microphone is keyed, the active transceiver´s MIC button LED blinks approximately once per second to indicate the transmitter is active.

When no airplane radio activity is detected by the GMA 340, the amount of ambient background noise from the radios is further reduced by the **MASQ™** circuit. This processing is also applied to the Nav radios.

| SPLIT COM

Pressing the COM 1/2 button (15) activates the split com function. While this mode is active, COM 2 is dedicated solely to the copilot as a MIC/audio source while COM 1 is dedicated to the pilot as a MIC/audio source. The pilot can still listen to NAV 1, NAV 2, DME, ADF, and MKR. The pilot and copilot can simultaneously transmit in this mode, the pilot transmitting over COM 1 and the copilot transmitting over COM 2. The SPLIT COM mode is canceled by pressing the COM 1/2 button a second time.

AIRPLANE RADIOS & NAVIGATION

NOTE

Audio level is controlled by the selected nav radio volume control.

Pressing NAV 1, NAV 2, DME, ADF (16), or MKR (2) (see MARKER BEACON RECEIVER) selects that audio source. A second button press deselects the audio source.

SPEAKER OUTPUT

Pressing the SPKR button (12) selects the airplane radios over the cabin speaker. The speaker output is muted when a COM microphone is keyed.

INTERCOM SYSTEM (ICS)

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 (5). Full counter-clockwise DETENT position OFF.

- **LEFT LARGE KNOB** - Pilot squelch level (6). Clockwise rotation increases the amount of mic audio required to break squelch. Full counter-clockwise is the 'hot mic' position.

- **RIGHT SMALL KNOB** - IN position: Copilot ICS volume. OUT position: Passenger ICS volume (7).

- **RIGHT LARGE KNOB** - Copilot and passenger squelch level (8): clockwise rotation increases the amount of mic audio required to break squelch. Fully counter-clockwise is the 'hot mic' position.

Each microphone input has dedicated VOX circuit to ensure that only the active microphone(s) is/are heard when squelch is broken. This represents a vast improvement over single gate 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 during normal pauses.

The GMA 340 provides three intercom modes: PILOT, CREW and ALL. The mode selection is accomplished using the PILOT (10) and CREW (9) buttons.

Pressing a 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. ALL mode is active when neither PILOT or CREW mode is selected.

These modes allow different degrees of interaction between the crew and passengers:

- PILOT mode isolates the pilot from everyone else and dedicates the airplane radios to the pilot exclusively. The copilot and passengers share communication between themselves but cannot communicate with the pilot or hear the airplane 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 airplane radios.

- ALL mode allows full intercom communication between everyone plugged into the GMA 340. Airplane radios are heard by all.

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The following table summarizes the different modes supported by the GMA 340.

MODE	PILOT HEARS	COPILOT HEARS	PASSENGERS HEAR
PILOT (LED LIT)	Selected Radios. Pilot.	Copilot. Passengers.	Passengers. Copilot.
CREW (LED LIT)	Selected Radios. Pilot. Copilot.	Selected Radios. Copilot. Pilot.	Passengers.
ALL (LED´s OFF)	Selected Radios. Pilot. Copilot. Passengers.	Selected Radios. Pilot. Copilot. Passengers.	Selected Radios. Pilot. Copilot. Passengers.

MONO/STEREO HEADSETS

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

One of the headset channel outputs will be shorted to ground under these conditions. The person plugging in the mono headset will hear only one channel from the GMA 340, but in both ears. However, anyone else plugging in a stereo headset at a different passenger position will have audio in one ear only unless his or her headset has a stereo/mono switch. Note that a stereo/mono switch on the headset does not prevent the mono headset from shorting one of the channels to ground. That headset only routes its tip audio to both ears.

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 airplane passes over a 75 MHz marker beacon transmitter.

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

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

The GMA 340´s marker beacon receiver controls are located on the left side of the front panel [(1) through (4)]. The SENS button (4) 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 being received, then pressing again will deselect the marker audio. This operation is similar to selecting any other source on the GMA 340. However, if the second button press occurs while a marker beacon signal is being 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.

8. AIRPLANE HANDLING, CARE AND MAINTENANCE

No change.