Subject: Change to Terrain Avoidance Procedures

Introduction

In response to recent FOQA and ASAP reports, a change to Terrain Avoidance procedures is required. Data has shown that pilots, operating in day visual conditions, have not adjusted their flight paths when receiving a Terrain Caution or Terrain Warning. Three FOQA events have occurred in the last 30 days.

The most recent event occurred 20 miles from the airport, in mountainous terrain, within minutes of official sunset. FOQA data showed height above terrain to be 670 ft AGL. An aural warning PULL UP sounded continuously for 10 seconds with no adjustment to flight path or go-around.

Procedure

Pilots are now required to:

- Immediately adjust the flight path or initiate a go-around to correct any GPWS Caution.
- Immediately accomplish the Terrain Avoidance Maneuver for any GPWS Warning, e.g., PULL UP.

The daylight VMC exception notes in the FCTM that currently permit a crew to disregard GPWS Cautions or Warnings if he determines that no threat exists are being removed. The new FCTM guidance is on the following pages.

Terrain Avoidance Maneuvers

Ground Proximity Caution

Accomplish the following maneuver for any of these aural alerts (some repeat):

Pilot Flying	Pilot Monitoring
Immediately adjust the flight path or initiate a go-around.	

- CAUTION TERRAIN
- SINK RATE
- TERRAIN
- DON'T SINK
- TOO LOW FLAPS
- TOO LOW GEAR
- TOO LOW TERRAIN
- GLIDESLOPE

The below glideslope deviation alert may be canceled or inhibited for:

- Localizer or backcourse approach
- Circling approach from an ILS
- When conditions require a deliberate approach below glideslope
- Unreliable glideslope signal.

Ground Proximity Warning

The Ground Proximity Warning System (GPWS) PULL UP Warning occurs when an unsafe distance or closure rate is detected with terrain below the aircraft. The Enhanced Ground Proximity Warning System (EGPWS)/look-ahead terrain alerting also provides an aural warning when an unsafe distance is detected from terrain ahead of the aircraft. If either of these occur, immediately accomplish the Terrain Avoidance maneuver.

Do not attempt to engage the autopilot and/or autothrust until terrain clearance is assured.

Accomplish the following maneuver for any of these conditions:

- Activation of the PULL UP or TERRAIN TERRAIN PULL UP warning
- Other situations resulting in unacceptable flight toward terrain.

Pilot Flying	Pilot Monitoring
• Disconnect autopilot. • Disconnect autothrottle(s). • Aggressively apply maximum* thrust. • Simultaneously roll wings level and rotate to an initial pitch attitude of 20°. • Retract speedbrakes. • If terrain remains a threat, continue rotation up to the pitch limit indicator or stick shaker or initial buffet.	• Assure maximum* thrust. • Verify all required actions have been completed and call out any omissions.
• Do not change gear or flap configuration until terrain separation is assured. • Monitor radio altimeter for sustained or increasing terrain separation. • When clear of the terrain, slowly decrease pitch attitude and accelerate.	• Monitor vertical speed and altitude (radio altitude for terrain clearance and barometric altitude for a minimum safe altitude). • Call out any trend toward terrain contact.

Note: * Maximum thrust can be obtained by:
(88) advancing the throttles to firewall.
(90) advancing the throttles through the ORT gate.

Note: Immediately rotate the aircraft at a rate of 3° per second. Aft control column force increases as the airspeed decreases. In all cases, the pitch attitude that results in intermittent stick shaker or initial buffet is the upper pitch attitude limit. Flight at intermittent stick shaker may be required to obtain positive terrain separation. Smooth, steady control will avoid a pitch attitude overshoot and stall.

Note: Do not use flight director commands.

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