Attachment D

to Addendum 4 to Operations Group Chairman's Factual Report

DCA94MA076

Excerpts from
Boeing 737-300 Airplane Flight Manual

(3 pages)

D-1

AUTOPILOT ELEVATOR MALFUNCTION

The demonstrated altitude loss due to a simulated hard-over autopilot malfunction is:

LEVEL FLIGHT: 500 feet when recovery was initiated three seconds after pilot recognition.

APPROACH:

(a) 18 feet deviation from airplane glide path when recovery was initiated one second after pilot recognition.

(b) Negligible deviation from airplane glide path when recovery was initiated without delay after pilot recognition.

UNCOMMANDED YAW OR ROLL

RECALL

Maintain control of the airplane with all available flight controls. If roll is uncontrollable, immediately reduce angle of attack and increase airspeed. Do not attempt to maintain altitude until control is recovered. If engaged, disconnect autopilot and autothrottle.

UNSYMMETRICAL TRAILING EDGE FLAPS

After a trailing edge flap asymmetry shut-off, do not attempt to override flap asymmetry protection. Place flap lever in nearest detent corresponding to the smallest actual flap position, and land using the following speeds:

Flaps 15 or more, set V_{REF} for the smallest flap position.

Flaps 1 to 15, set V_{REF}, flaps 40 + 30 knots.

Flaps less than 1, use trailing edge flaps up procedure.

TRAILING EDGE FLAPS UP LANDING

Land at as low a gross weight as possible. Maintain 210 knots until on final approach. Limit bank angle to 15 degrees below 210 knots. Approach and land at V_{REF} flaps 40 plus 40 knots. Use alternate system to extend leading edge devices at 230 knots or lower.

ALL FLAPS UP LANDING

Land at as low a gross weight as possible.
Maintain flaps-up maneuvering speed until on final approach.
Limit bank angle to 15 degrees below 210 knots.
Approach and land at V_{REF} flaps 40 plus 55 knots.

JAMMED FLIGHT CONTROLS

JAMMED OR RESTRICTED ELEVATOR OR AILERON

In the event of a jammed elevator or aileron, do not hesitate to apply additional force to maintain control of the airplane. Do not turn off any flight control switches unless the faulty control is positively identified. Manual trim may be used to offload control forces.

JAMMED OR RESTRICTED RUDDER

If the rudder pedals will not move to the pilot commanded position, or if the pedals are deflected in one direction and jammed, maintain control of the airplane with all available flight controls. Disengage the autopilot and autothrottle. Use maximum force (combined effort by both pilots) to overpower the rudder system.

After establishing control of the aircraft, check rudder pedal position. If the rudder pedals have centered, accomplish a normal descent, approach, and landing. If the rudder pedals remain jammed and are deflected to a degree that significantly affects the controllability of the airplane, select System B flight control switch to STBY RUD. If this action clears the jam/deflection, make a normal approach and landing, noting that rudder control may be limited. If moving the System B flight control switch to STBY RUD does not clear the jam, select System A flight control switch to off. If pedals do not center, select System B flight control switch to off. Make approach and landing with flaps 15 at V_{REF} flaps 15. The crosswind capability of the airplane will be greatly reduced.

MANUAL FLIGHT CONTROL

Larger control forces should be anticipated and larger amounts of control movements are required. Make approach and landing with flaps 15 at V_{REF} flaps 15. The crosswind capability of the airplane will be greatly reduced.

RUNAWAY STABILIZER

Control airplane pitch attitude with control column and main electric trim as required. If relaxing the column causes the trim to move, set stabilizer trim switches to CUTOUT. If runaway continues, hold the stabilizer trim wheel against rotation and trim the airplane manually.

JAMMED STABILIZER LANDING

Make approach and landing with flaps 15 at V_{REF} flaps 15 to insure adequate elevator control is available for landing flare. Anticipate higher than normal elevator forces during approach and landing.

YAW DAMPER

The yaw damper is a separate control and provides a limited rudder movement in opposition to the yaw rate of the airplane. Rudder (yaw damper) indicator displacement indicates yaw damper operation. Yaw damper light illuminates amber when the yaw damper is not engaged.

LANDING GEAR LEVER UNABLE TO PLACE IN UP POSITION AFTER TAKEOFF

If landing gear retraction is necessary:

Landing Gear Override Trigger . . . . . .PULL
Gear Lever. . . . . .UP
Speedbrake. . . . . DOWN DETENT

NOTE: Do not use speedbrakes in flight. High sink rate could occur due to inadvertent ground spoiler deployment in addition to flight spoilers.

MANUAL LANDING GEAR EXTENSION

Extend landing gear manually as follows:

Gear Lever. . . . . OFF
Airspeed. . . . . .VLO or below
Manual access door. . . . . .OPEN
T-handles (3) . . . . . .PULL
Wait 15 seconds after the last MANUAL GEAR EXTENSION HANDLE IS PULLED:
Gear lever. . . . . .DOWN
Gear down and locked lights . . . . CHECK GREEN