FOQA

FLIGHT OPERATIONAL QUALITY ASSURANCE

NTSB /SAE BRIEFING JUNE 2003

CAPT. JOHN ANDERSON
FLIGHT TECHNICAL PILOT
CONTINENTAL AIRLINES

SAFETY CHANGE & TRAINING DEVELOPMENT PROGRAM

CASIS-CAL SAFETY INFORMATION SYSTEM

ASAP-AVIATION SAFETY AWARENESS PROGRAM

FOQA-FLIGHT OPERATIONS QUALITY ASSURANCE

AQP-ADVANCED QUALIFICATION PROGRAM

LOSA-LINE ORIENTED SAFETY AUDIT

CRM-CREW RESOURCE MANAGEMENT

FOQA

FLIGHT OPERATIONS QUALITY ASSURANCE

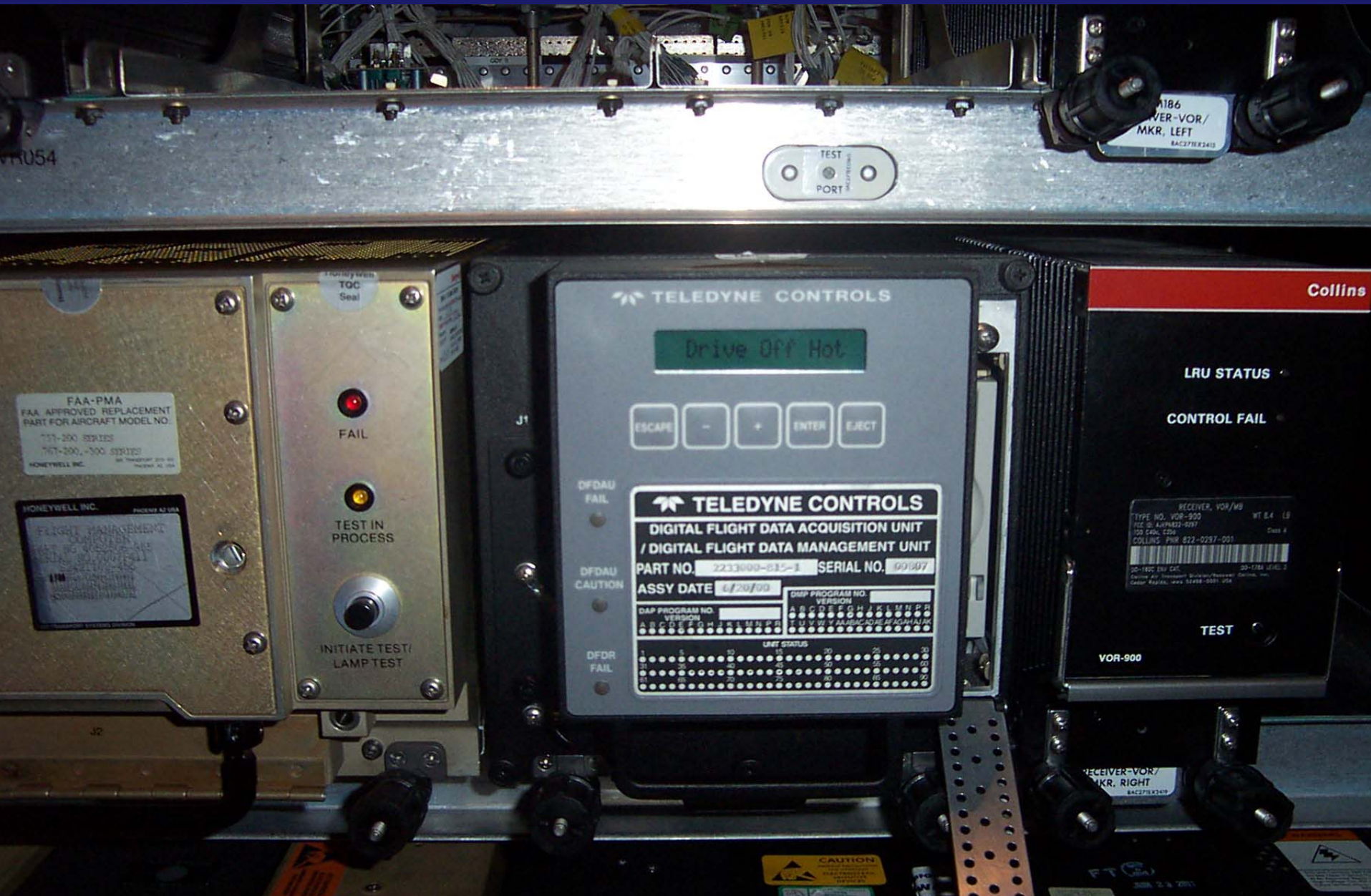
FLIGHT SAFETY ENHANCEMENTS

- **Operational success**
- Use of data to effect change
- **Flight safety/ Engineering support**
- Use of FOQA data in engineering events with manufactures
- Industry sharing of engineering events within industry

OPTICAL DISK REMOVAL
PREFORMED DURING MX CHECK

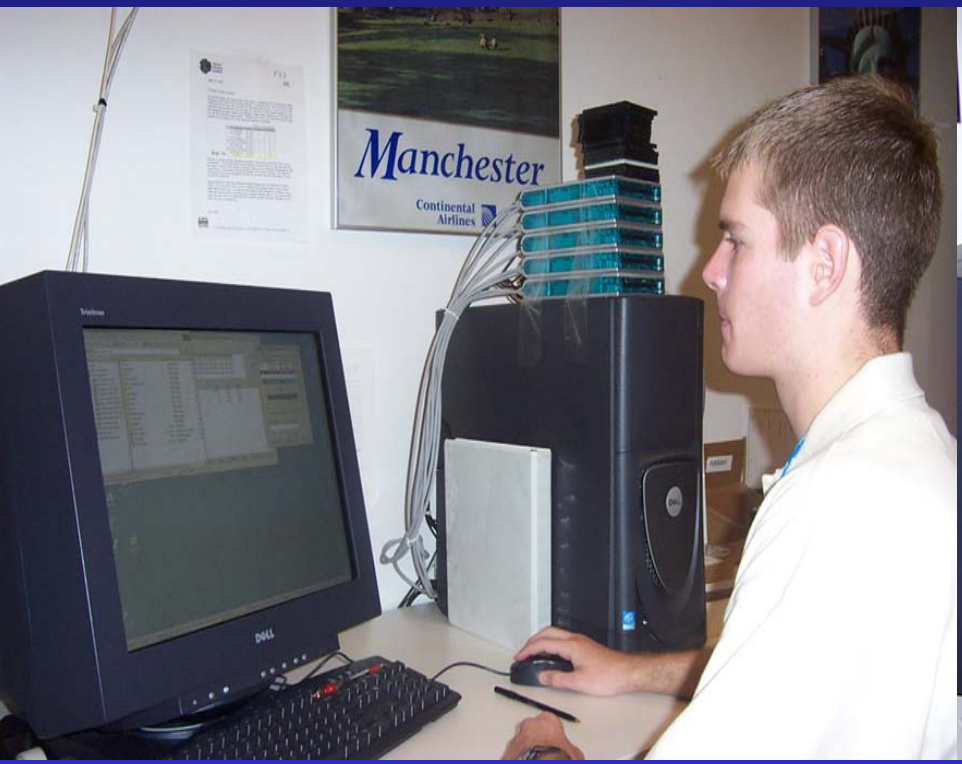
TELEDYNE OPTICAL RECORDER LOCATED IN E&E COMPARTMENT

TELEDYNE DIGITAL MANAGEMENT UNIT WITH OPTICAL DISK RECORDER

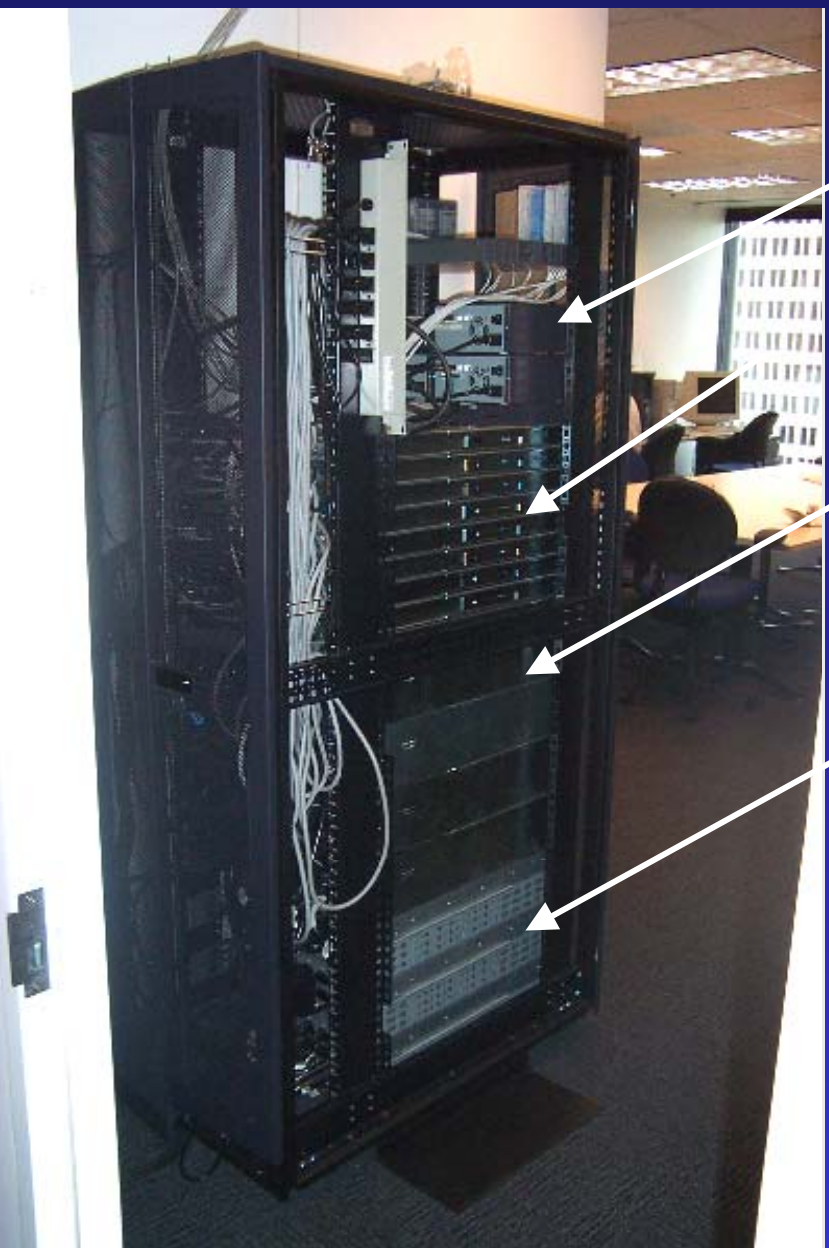


OPTICAL DISK 230 MB

OPTICAL DISKS BEING PROCESSED



FOQA DATA SERVER UNIT

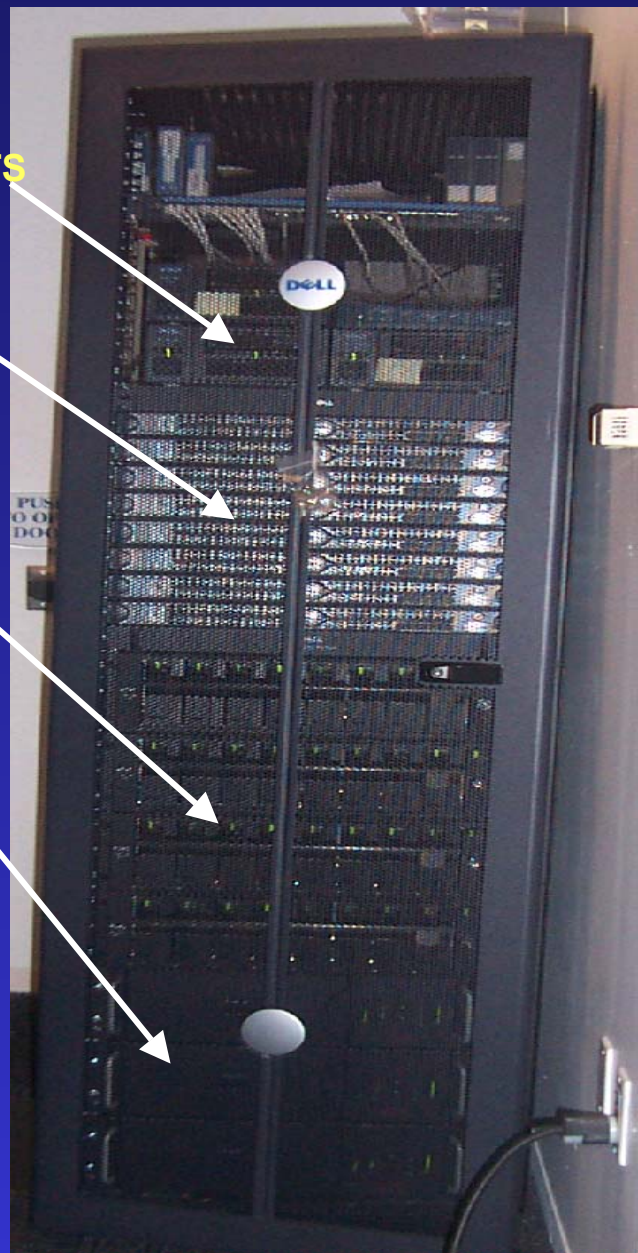


TAPE BACK UP UNITS

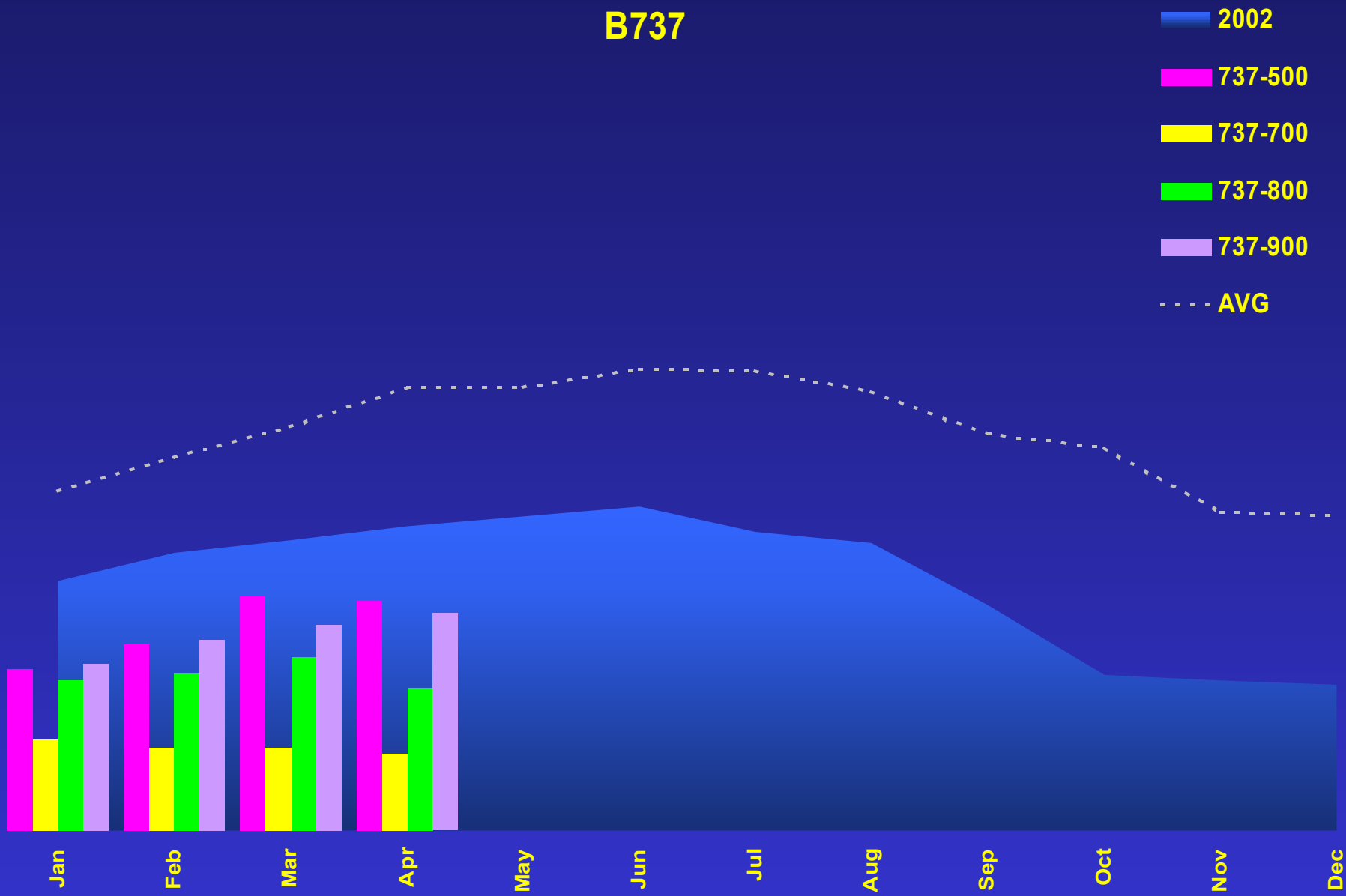
8 SERVER UNITS

2.5 TERRABYTE HARDRIVE ARRAY

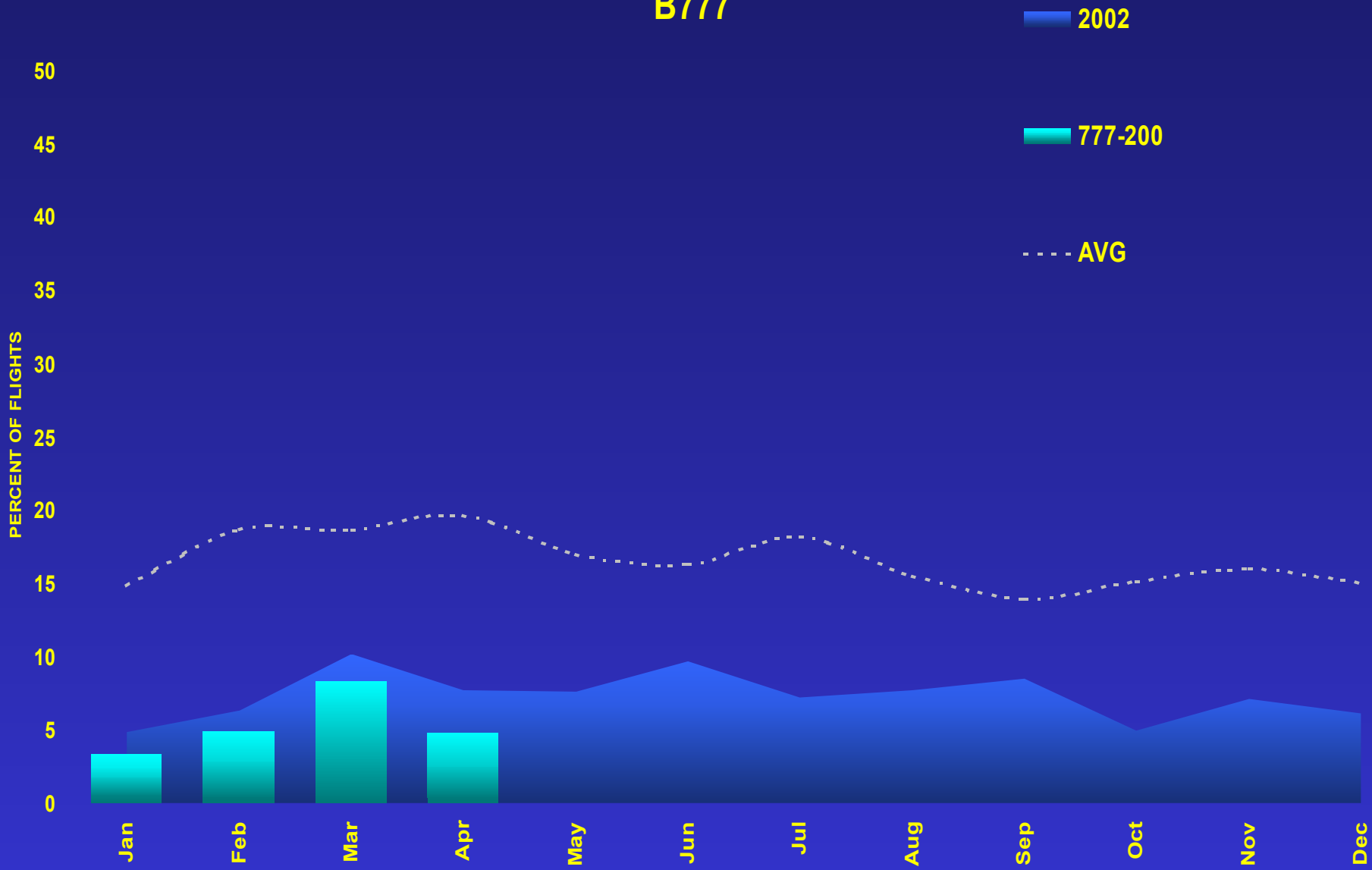
BATTERY BACKUP

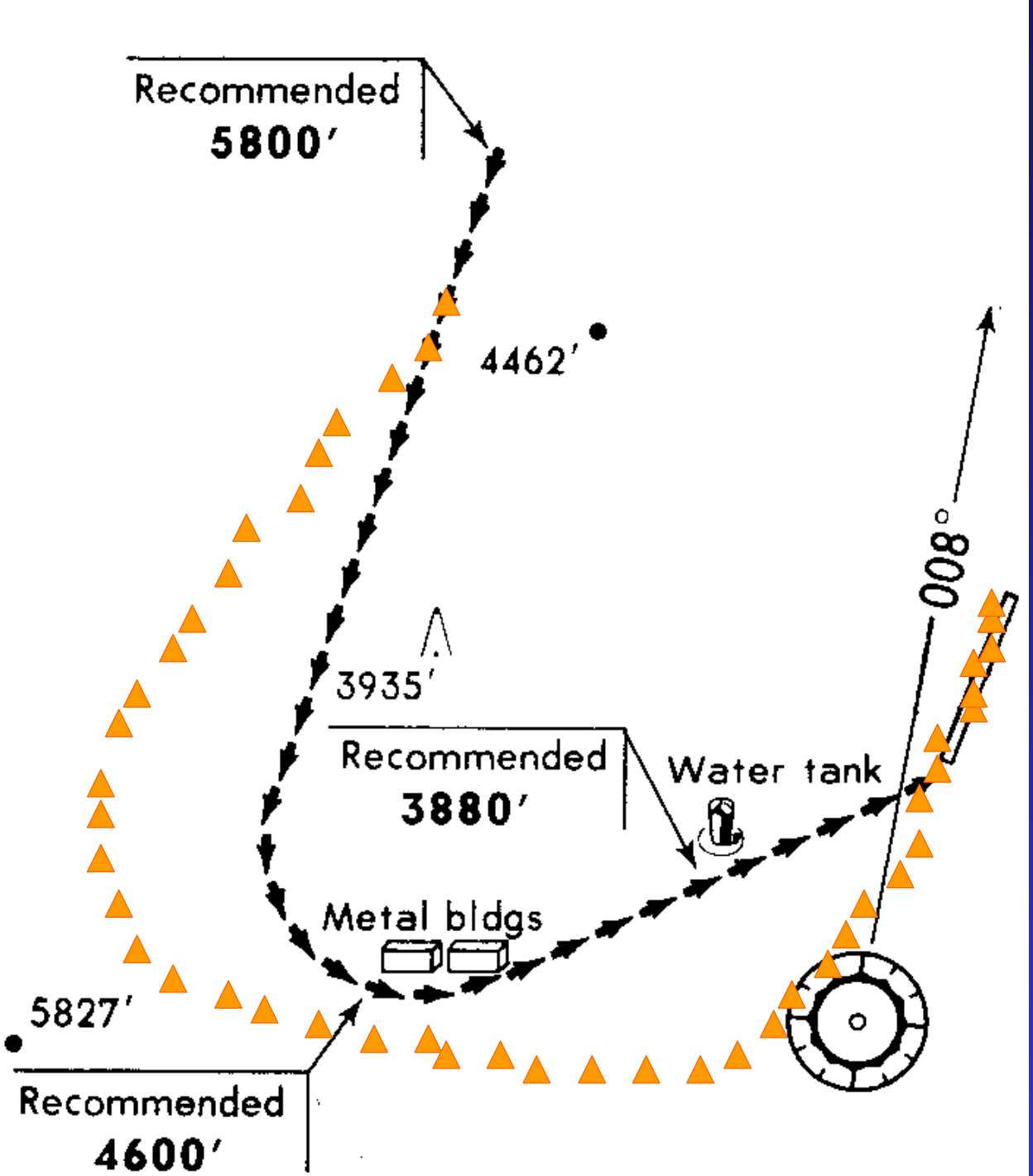


HIGH RATE OF DESCENT
1000 - 500 > 1100FPM
B737

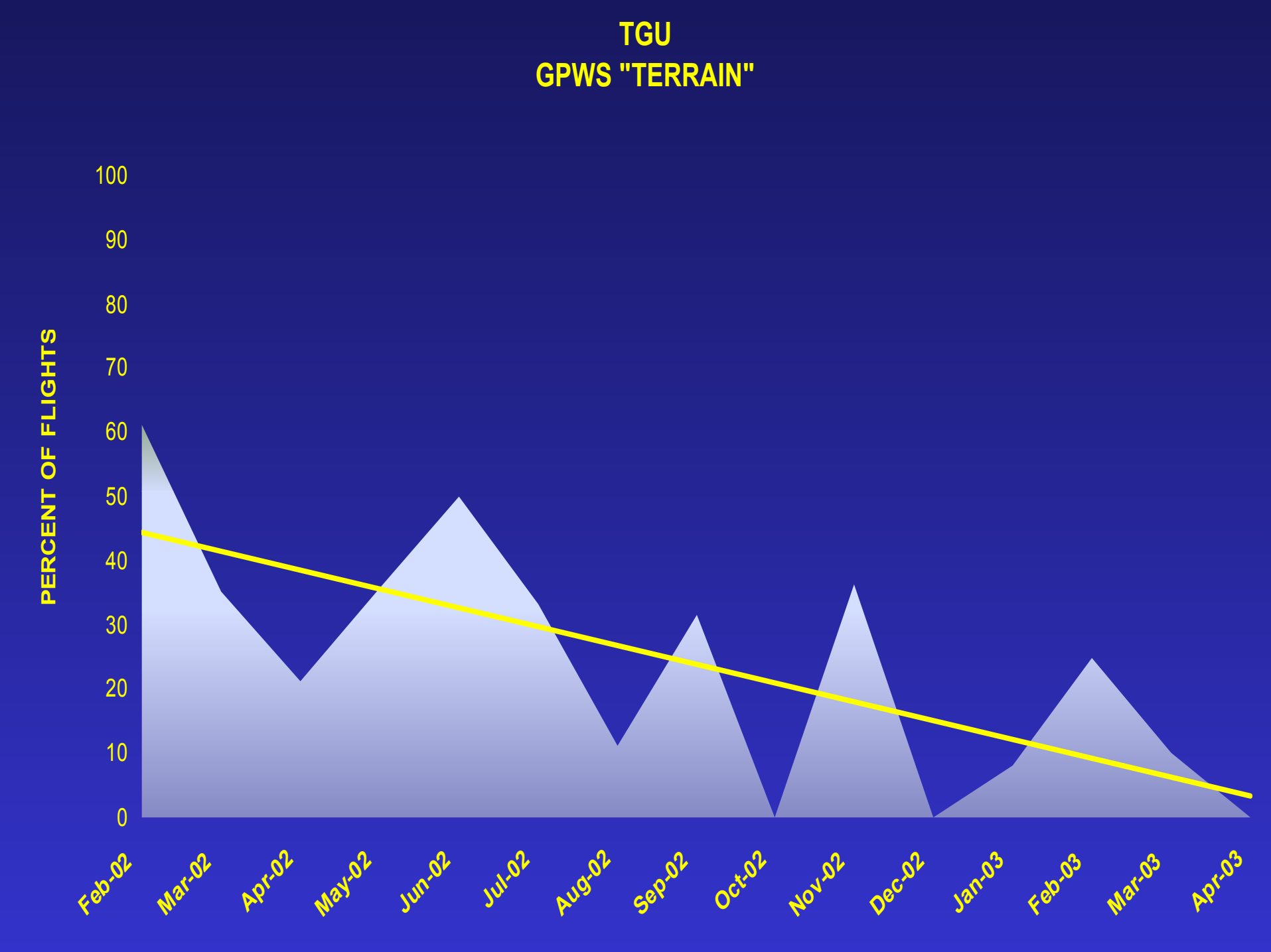


HIGH RATE OF DESCENT
< 500 > 1000FPM
B777

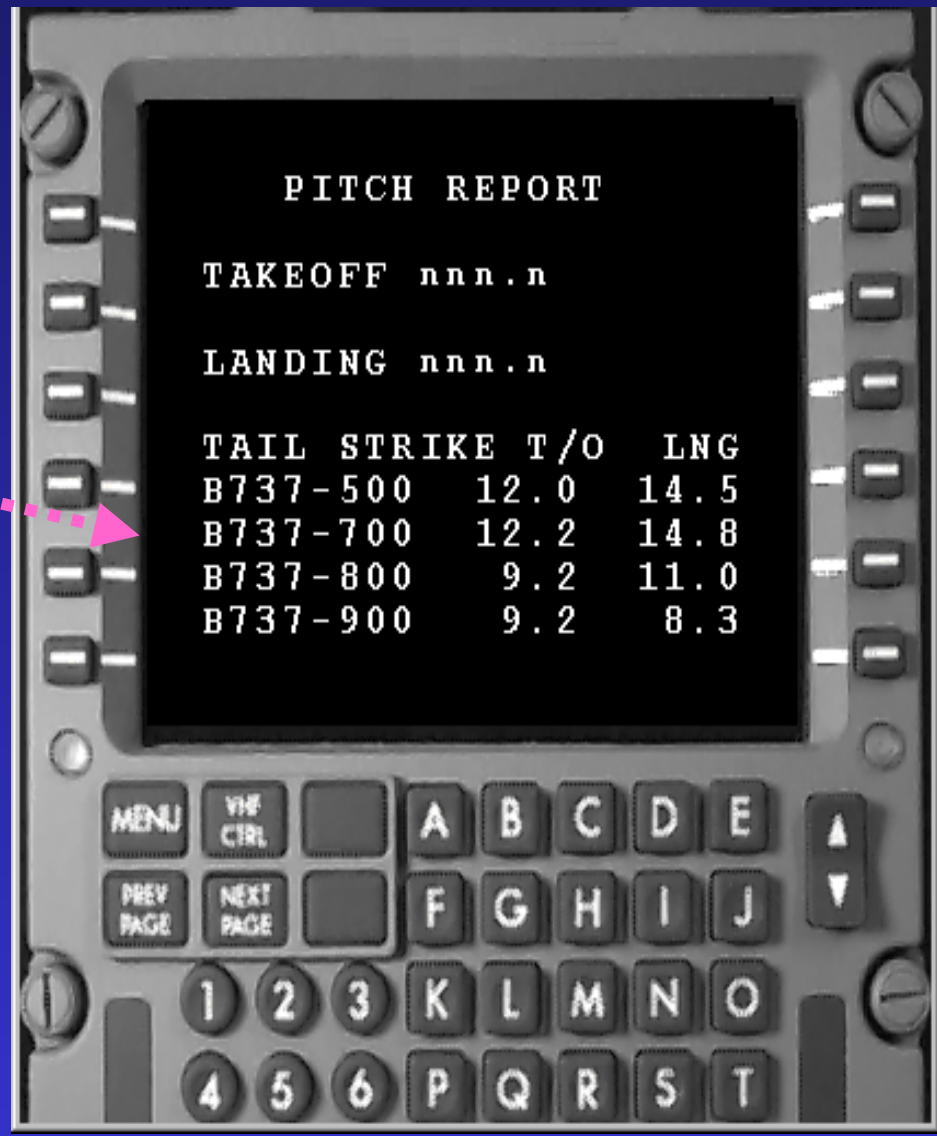



Recommended
5800′
4462′
3935′
Recommended
3880′
Water tank
Metal bldgs
5827′
Recommended
4600′
008°

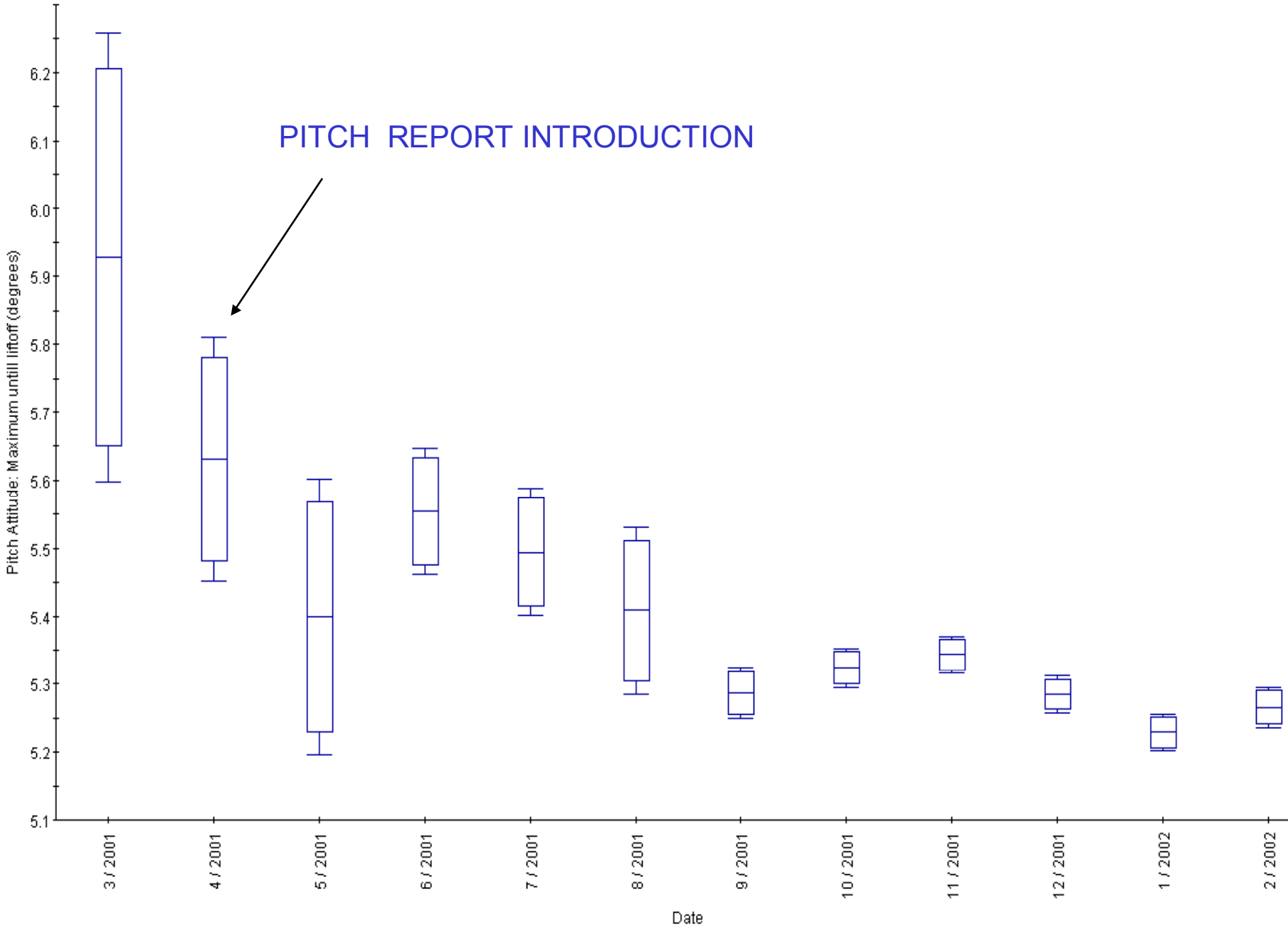
TGU
GPWS "TERRAIN"



PITCH REPORT FLIGHT DECK DISPLAY



B737- 800 MAX PITCH AT TAKEOFF



ENGINEERING EVENTS

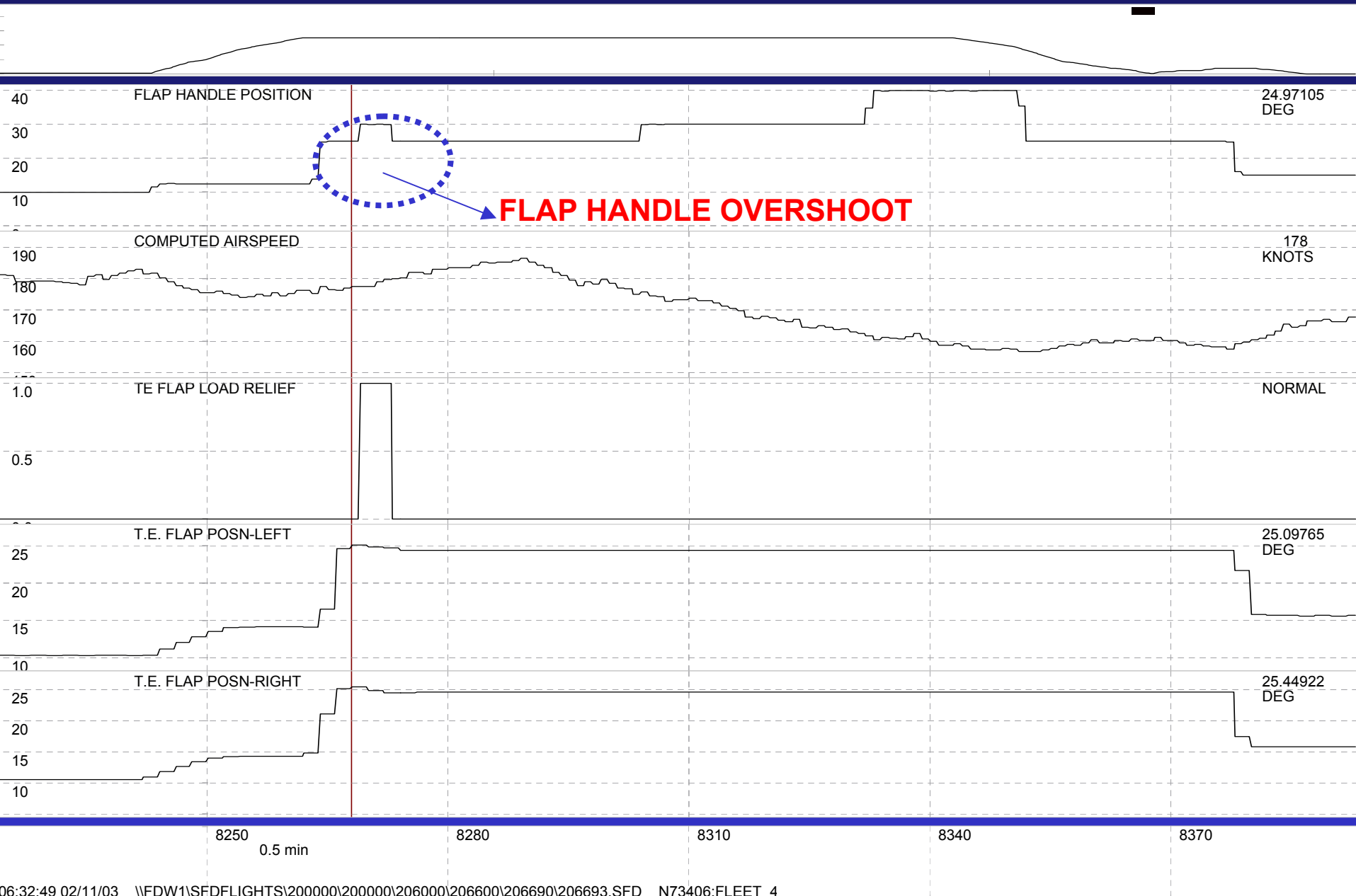
TRAILING EDGE FLAP MALFUNCTIONS
(GPWS, Go around, and loss of stall protection events)

EGPWS
(False Too Low Terrain warnings) Generated by insufficient EGPWS database.

RADIO ALTIMETER ANTENNA FAILURES
(False GPWS and Gear warnings)

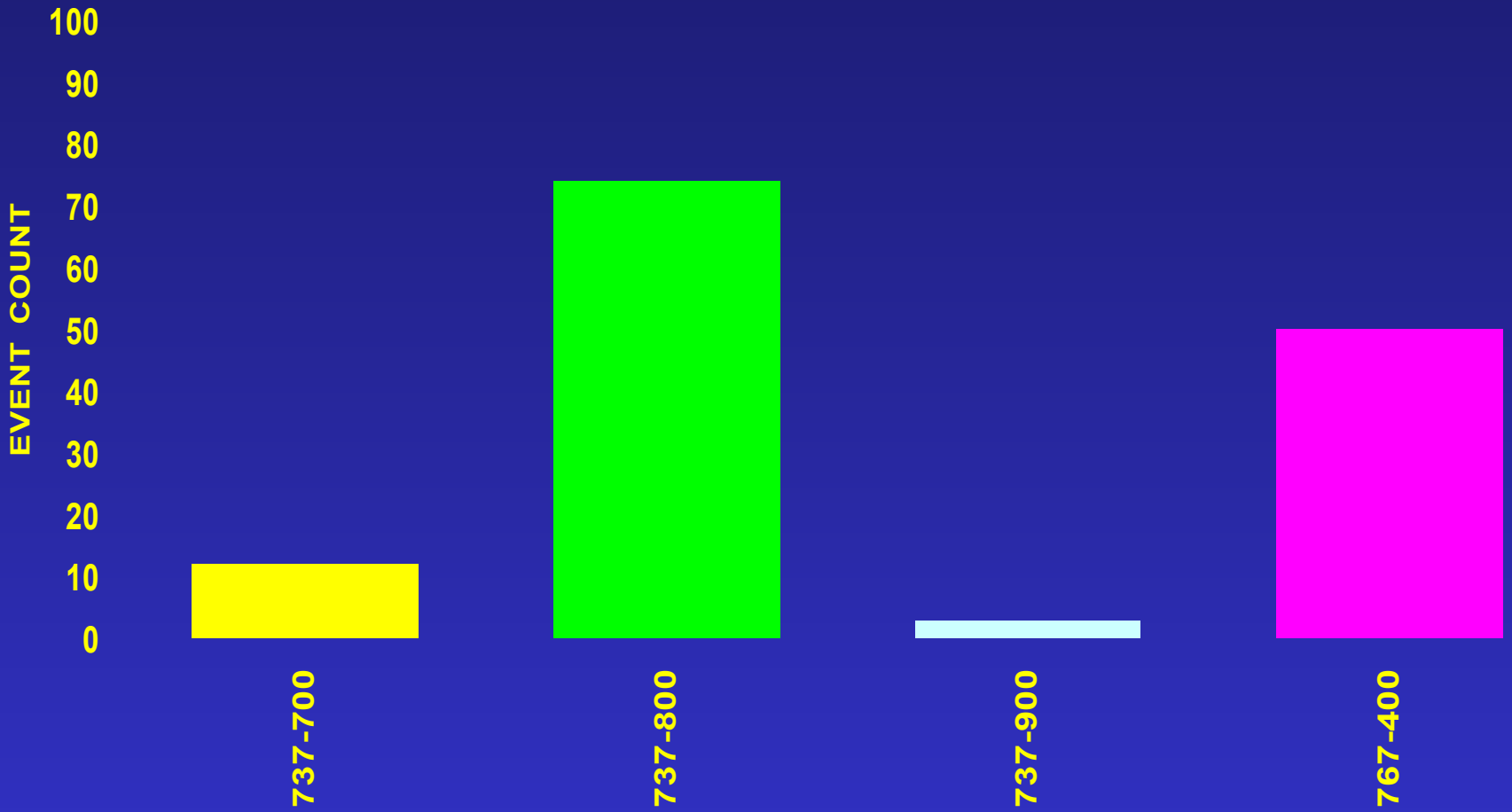
LEADING EDGE FLAP INDICATION FAILURES
(Produces early stall warning stick shaker)

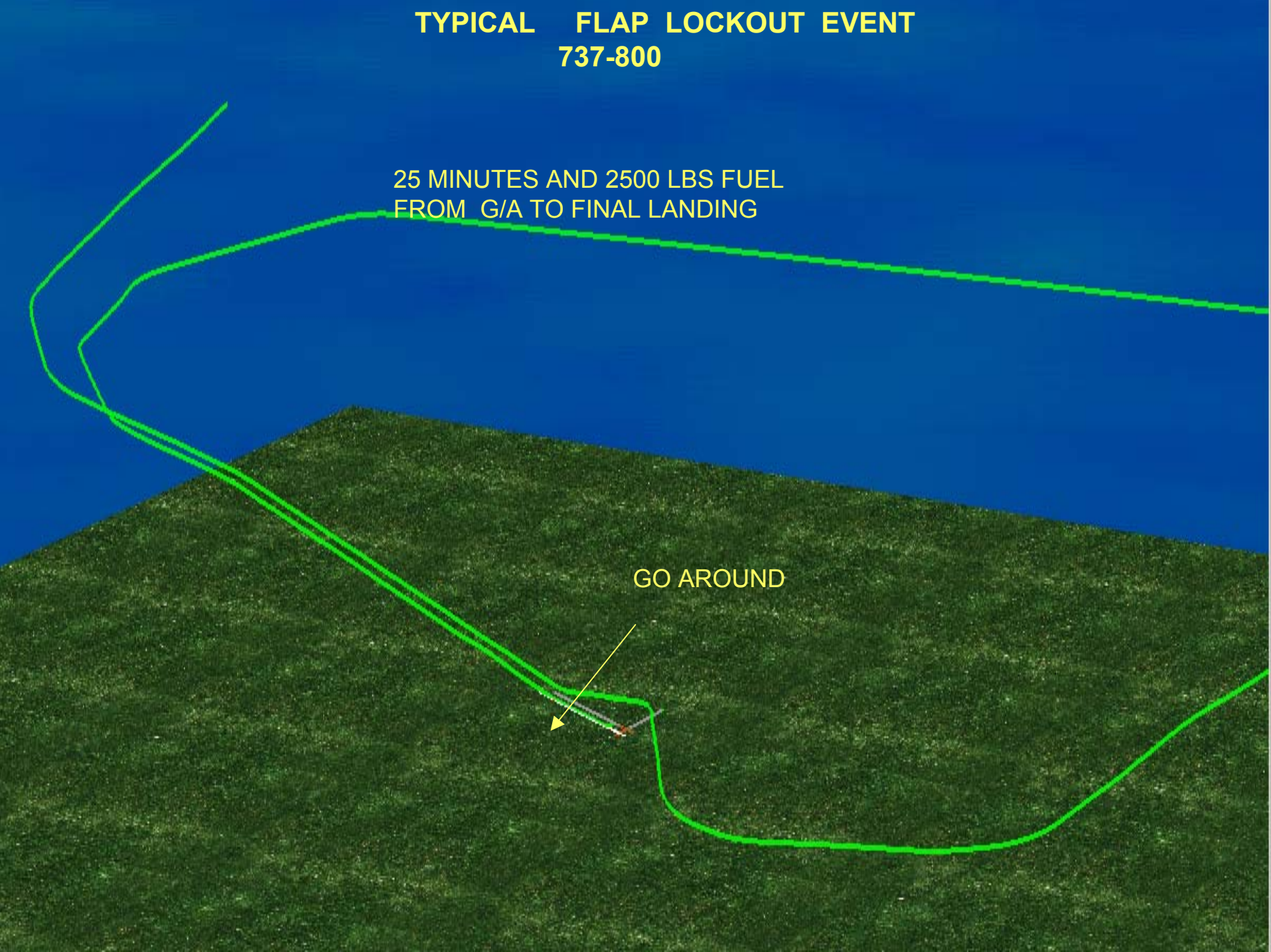
TYPICAL FLAP LOCKOUT MALFUNCTION



06:32:49 02/11/03 \\FDW1\SFDFLIGHTS\200000\200000\206000\206600\206690\206693.SFD N73406:FLEET 4

FLAP LOCKOUT EVENTS
2002



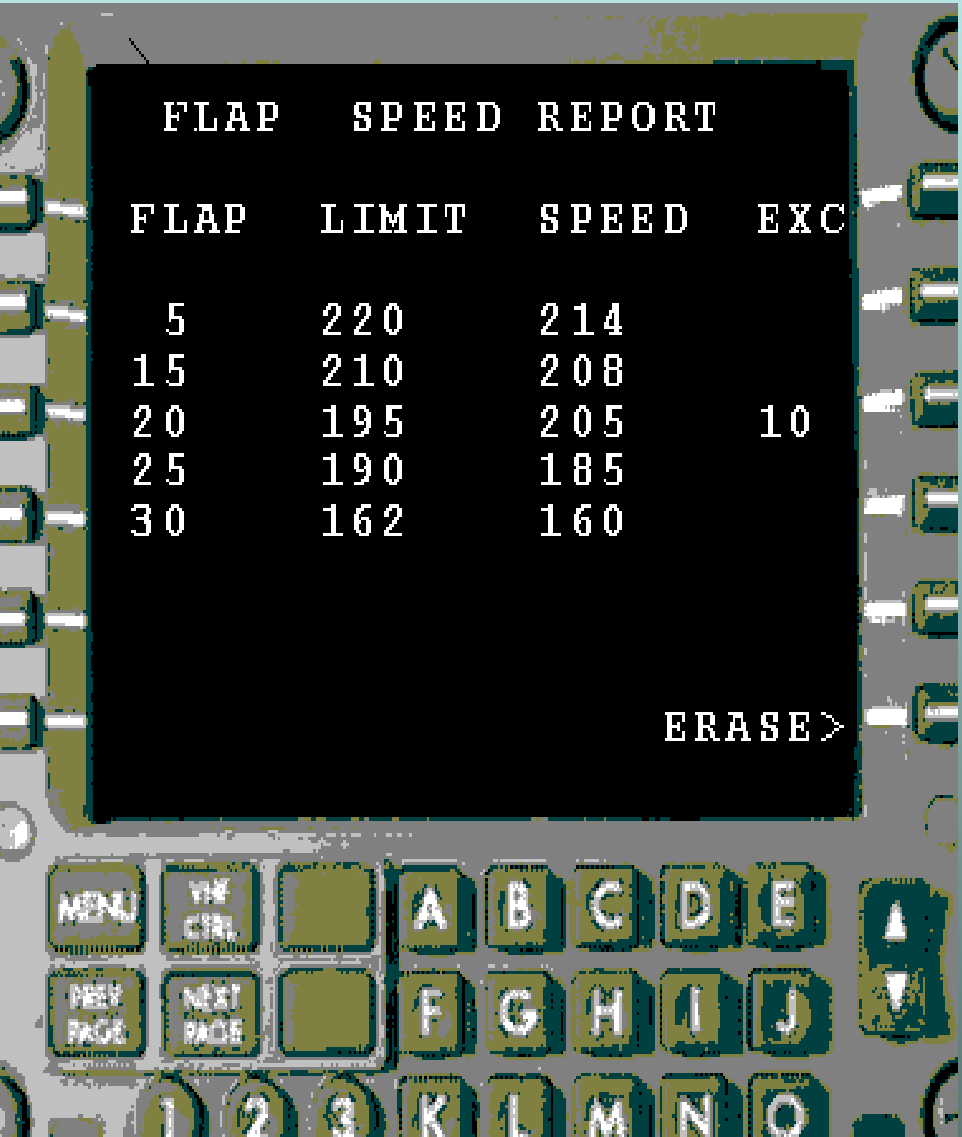

TYPICAL FLAP LOCKOUT EVENT
737-800
25 MINUTES AND 2500 LBS FUEL
FROM G/A TO FINAL LANDING
GO AROUND

AIRCRAFT 321 STICK SHAKER HISTORY
IDENTICAL TO PREVIOUS EVENT

Frame-SF	Time	Statu	T.E. FLAP LEFT FLAPL deg	T.E. FLAP RIGHT FLAPR deg	STICKSH LEFT SSL	SLAT 1FULEXT S1E	SLAT 1MIDEXT S1M	SLSLAT 12FULEXT S1S2E	HYD SLAT 2MIDEXT S2M	SL HYD SYS B 2ELEC S2HPBE
111622-1	8:47		25			FULEXT		FULEXT		NORMAL
111622-2	8:47			25		FULEXT		FULEXT	NORMAL	
111622-3	8:48		25			FULEXT		FULEXT		NORMAL
111622-4	8:48			25		FULEXT		FULEXT	NORMAL	
111623-1	8:48		25			FULEXT		FULEXT		NORMAL
111623-2	8:48			25		FULEXT		FULEXT	NORMAL	
111623-3	8:48		25			FULEXT		FULEXT		NORMAL
111623-4	8:48			25		FULEXT		FULEXT	NORMAL	
111624-1	8:48		25			FULEXT		FULEXT		NORMAL
111624-2	8:48			25		FULEXT		FULEXT	NORMAL	
111624-3	8:48		25				INTRAN	FULEXT		NORMAL
111624-4	8:48			25			INTRAN	FULEXT	NORMAL	
111625-1	8:48		25		SHAKE		INTRAN	FULEXT		NORMAL
111625-2	8:48			25			INTRAN	FULEXT	NORMAL	
111625-3	8:48		25				INTRAN	FULEXT		NORMAL
111625-4	8:48			25			INTRAN	FULEXT	NORMAL	
111626-1	8:48		25				INTRAN	FULEXT		NORMAL
111626-2	8:48			25			INTRAN	FULEXT	NORMAL	
111626-3	8:48		25				INTRAN	FULEXT		NORMAL
111626-4	8:48			25			INTRAN	FULEXT	NORMAL	

FLAP SPEED REPORT

MAX SPEED BY FLAP HANDLE POSITION



APPROACH REPORT 500' – 50 '

FLIGHT SAFETY ENHANCEMENTS

- **Operational successes**
- Use of data to effect change
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