

FOREWORD

This book is a plain English, illustrated, technical guide, intended to fill in the gaps left by existing publications. It contains facts, tips, photographs and points of interest, rather than simply being a reproduction of the manuals. Its broad scope will hopefully make it as interesting to students doing their type rating as it will be to Training Captains fielding unusual and searching questions from colleagues.

It is in no way intended to replace any of your FCOMs, company Ops Manuals or indeed any other official source of material. Nor is it a stand alone study guide for the type rating - although it will offer considerable help. But rather it is intended to supplement all of the above, whilst hopefully being an interesting read.

Fly safely and enjoy the 737.

Chris Brady

CONTENTS

FOREWORD.....	I
CONTENTS.....	II
HISTORY AND DEVELOPMENT	1
ORIGINALS.....	2
737-100.....	5
737-200 Basic.....	5
737-200 Advanced.....	6
737-200 Convertible (C), Quick Change (QC) & Combi.....	8
T-43A, CT-43A, NT-43A.....	8
737 Testbeds.....	10
MP Surveiller.....	12
FF 21 Apr 1982, 3 built.....	12
CLASSICS.....	13
737-300.....	15
737-400.....	16
737-500.....	16
Cargo Versions.....	17
Military Versions.....	17
NEXT GENERATION.....	18
737-600.....	20
737-700.....	20
737-800.....	22
737-900.....	23
BBJ.....	25
C-40 “Clipper”.....	26
E-737 AEW&C.....	27
MMA / P-8A “Poseidon”.....	28
SIGINT.....	29
737 REPLACEMENT.....	29
PRODUCTION	30
Materials.....	31
Outsourcing.....	32
Sales.....	32
SYSTEMS.....	34
AIRCRAFT GENERAL.....	34
Lights.....	34
Eye Position Indicator.....	35
Water System.....	35
Airstairs.....	36
Doors.....	37
Cargo Systems.....	38
AIR CONDITIONING & PRESSURISATION.....	41
Recirculation Fan(s).....	42
Ram Air.....	43
Equipment Cooling.....	45
Pre-Conditioned Air.....	45
Water Separator.....	46
Pressurisation.....	49
AUTOMATIC FLIGHT.....	51
Sperry SP-77.....	52

Sperry SP-177	53
Sperry (Honeywell) SP-300	53
Collins EDFCS-730	58
AUXILIARY POWER UNIT	62
NG Eductor cooling system	66
COMMUNICATIONS	69
Interphone	72
Data Loader	73
Satcom	73
Antennas	74
ELECTRICAL	76
AC & DC Metering panel	76
TRUs	77
Gen Drive & Standby Power panel	78
Generator Bus panel	79
Buses	80
Batteries	81
The Generator Diagnostics (Annunciator) Panel	82
The Power System Test Panel	84
Circuit Breakers	85
NG Electrical Buses Services	87
Electrical Schematics	93
EMERGENCY EQUIPMENT	97
Flight Crew Oxygen	97
Passenger Oxygen	99
Emergency Exit Lights	100
FIRE PROTECTION	101
Wheel-Well	102
APU	103
Cargo Compartment	104
FLIGHT CONTROLS	105
Roll	105
Yaw	108
Pitch	110
Feel	113
Leading Edge Devices	113
Trailing Edge Flaps	116
FLIGHT INSTRUMENTS	119
Original Flight Instruments	119
Classic Flight Instruments	120
NG Flight Instruments	124
CDS Block Points	126
New Approach Formats	127
Head-Up Guidance System (HGS)	129
Standby Flight Instruments	129
Electronic Flight Bag (EFB)	130
Flight Data Recorder (FDR)	130
FLIGHT MANAGEMENT COMPUTER	132
FMC Inputs	133
FMC Databases	134
FMC Pages	136
FUEL	146
Fuel Gauges	147
Pumps	149
Auxiliary Fuel System	151
Centre Fuel Tank Inerting	152
FUSELAGE	155
Aft Body Vortex Generators	155
Radome	156
Lap Joints	156
Windows	157

Airframe Drainage	157
HYDRAULICS.....	158
Hydraulic Indications.....	160
Hydraulic Quantity	161
ICE AND RAIN PROTECTION	164
Window Heat.....	165
Engine Anti Ice.....	165
Wing Anti Ice	166
Airframe Visual Icing Cues	167
Wiper Controls.....	168
Non-environmental Icing.....	168
Rain Repellent	169
LANDING GEAR.....	170
Gear Viewers (not NGs).....	171
Tyres	174
Brakes	175
Autobrake & Antiskid.....	176
NAVIGATION.....	178
EHSI & Navigation Display	181
Vertical Situation Display.....	184
Alternate Navigation System - ANS.....	186
ETOPS	187
PNEUMATICS.....	188
POWER PLANT.....	190
Ignition.....	192
Engine Indication Systems.....	194
NG Displays	196
Airborne Vibration Monitors	198
Dual Annular Combustors (DAC)	198
Reverse Thrust.....	198
Hushkits	200
Engine Ratings.....	201
WARNING SYSTEMS	204
Warning Lights	204
Aural Warnings.....	205
Noise Levels	207
Proximity Switch Electronic Unit.....	208
Stall Warning.....	209
SMYD.....	209
Weather Radar	210
EGPWS - Peaks Display.....	211
WINGS & WINGLETS	212
Winglets.....	213
Mini-Winglets.....	215
THE RUDDER STORY.....	216
The Accidents	216
Conflicting Opinions	217
The Airworthiness Directives	218
More Incidents.....	218
The Crossover Speed	219
The RSEP AD.....	224
Technical Description	225
Rudder System Enhancement Program (RSEP)	227
Analysis of QRH Procedures	228
THE FLIGHT DECK.....	229
GENEALOGY	229
AFT ELECTRONICS PANEL.....	235
CENTRE INSTRUMENT PANEL	236
OVERHEAD PANEL.....	240

EXTERNAL.....	246
ACCESS PANELS	246
BIRDSTRIKE DAMAGE	247
BRAKE WEAR PINS	248
E & E BAY	249
ENGINE OIL SIGHT	251
FUEL FLOATSTICK / DRIPSTICK	251
FUEL TANK VENTS.....	252
REFUELLING PANEL	253
GENERATORS	254
INSTRUMENT PROBES.....	256
LIGHTNING STRIKE	259
SKIN DENTS & BUCKLES.....	259
MAIN WHEEL WELL	260
NOSE WHEEL	267
PRESSURISATION VALVES	269
TAIL SKID	271
STATIC DISCHARGERS.....	272
TYRES	273
UNPAVED STRIP KIT	274
PILOTS NOTES.....	276
NEW NORMAL PROCEDURES	276
RULES OF THUMB	278
LIMITATIONS.....	280
LANDING TECHNIQUE	281
ASSUMED TEMPERATURE THRUST REDUCTION	282
EFFECT OF CENTRE OF GRAVITY	285
ATA CODES.....	286
AIRTESTING.....	287
ADMIN & RESPONSIBILITIES	287
PRE-FLIGHT CHECKS	290
IN-FLIGHT TESTS	295
Engine Slam Accelerations	295
Performance Climbs.....	296
Engine Shutdown & Starter Assist Relight	296
De-Pressurisation Checks.....	297
Handling in the Climb.....	297
Functioning at FL350.....	298
High Mach Number Handling.....	300
Engine Shutdown & Windmill Relight	300
High IAS Handling	301
Low Speed Handling.....	302
TAXI IN & SHUTDOWN	304
POST FLIGHT DUTIES	305
ACCIDENT REPORTS.....	306
THE COMPLETE BOEING 737 WRITE-OFF LISTING.....	307
FMC UPDATES	328
TECHNICAL SPECIFICATIONS.....	344
737-1/200	346
737-3/4/500	348
737-NG.....	350
ABOUT THE AUTHOR.....	352
INDEX.....	353