Operational Procedural Reference Chart

FUEL (163kg Tot.)
Max. Imbalance
1-4 1.3kg
2-3 2.7kg

Flag/Dom/Supp (inside lower48)
A to B
B to most dist. Alt.
45min. @ normal cruise

Flag/Supp (outside lower48)
A to B
10% of A to B
B to most dist. Alt.
30min. @ 1500ft/+10% from A to B

Minimum Diversion Fuel:
MDF= Reserve Fuel on OFP
= Alt. + Res. Fuel req. (FOM 3.2.2)
May go below if:
- In destination area
- No reason to doubt you will land with less than reserve fuel.

Minimum Landing/TO Fuel:
Min. Flight Planning Fuel:
1hr. Dest or MDF= 45min alt.
@1500' FMC Resr. (FOM 3.6.3)
(FOM 3.2.1) see above

ALTERNATES
Domestic:
+/- 1h ETA (1+2+3)
at least 3m visibility
Ceiling at least 2000 above airport elev.

Marginal:
WX for Dest. +1^{s} alt. is marginal,
A 2nd alt. is required: Or at the discretion of Cpt./Disp. (FOM 3.3.2)

Flag:
+/- 1h ETA
The greater of:
Ceil. 1500 above lowest appr. Min/
2000 above airport elev.
The greater of:
3sm vis/2sm more than lowest applicable appr. Minimums

Flag flights greater than 6h.

All Supplemental Flights require Alternate.

All Flights:
Icy/slippery runways
Braking action poor or less.

T/O Alternate Required:
Not more than 2h from dep. arpt.
@ normal cruise/still air/1 Eng. Inop. (650 miles)

HOLDING SPEEDS
USA/PAN-OPS
Up to 6000MSL 200/210
6 thru 14000MSL 230/240
14000MSL+ 265(.83)

PAN-OPS 3&4: (ICAO)
Thru 14000ft 230
Above 14 thru 20000ft 240
Above 20 thru 34000ft 265
Above 34000ft M.83

Re-dispatch Airport WX:
Open: Ceil. /Vis 3000/5
Operational: NLT 1000/3
Instruments: NLT 600/1

RVR Chart Ft/M	
300ft	75m
400	125
500	150
600	175
700	200
1000	300
1200	350
1600	500
1800	550
2000	600
2100	650
2400	750
3000	1000
4000	1200
4500ft	1400m

WEATHER MINS:
Standard .T/O Mins:
½ mile/2400RVR(750m)

Approach Mins/Prec.
Cat.I 200/½ (RVR1800/550m) / NA / NA
Cat.II 100DH: RVR1000 (300m) / 600 mid / 300 ro.
Cat.III 100AH: RVR300 / 300 / 300 (75m)
Ref: FOM 8.1.4

Lower than std. T/O mins:
- TDZ1600RVR (500m)
  Mid RVR may replace TDZ RVR. HIRL/CL/RCLM **or** Adequate vis. During T/O roll required.
- TDZ1000RVR/Rollout1000RVR (300m)
  Mid RVR may replace either. CL required.
- 500/500/500RVR (150m) Min.2 RVR's and CL/RCLM required.
  5/5/5 not allowed if less than what is on T/O Obstacle Dep.Plate
  Ref QRH (Operations Information Section FOM 6.1.9 / 6.1.11)

Alternate Mins: (FOM 3.7.2) 1 Nav. facility/1 Approach: add 400/1 to Cat I mins (HAT)
2 Nav. facility/2 Approach: add 200/1/2 -- Prec. Cat II / III 600/2
-- Non Prec. 800/2

ETP WX: At or above Appr. Mins. Req. 90 min all eng. oper. from a suitable airport. 15 min. hold @1500 + appr.

LIMITATIONS:

Engine Start:	T/O:	Fuel Tank Temp:	Autoland X-Wind:		Departure Profiles:
870/40sec	960/5min	Jet A: -37/ +54	HW 25	XW25	NADPA =Climb3000/1500
750/unlimited	925/MCT		TW15	XW Cat II /III 15	NADPB =Climb1000/Flps5

Pilot Action required: *NO OIL PRESS/NO N1/ENGINE FIR*

SUPLEMENTARY PROCEDURES/PERFORMANCE:

Captain T/O:	When in W&B zone 2.
ATM:	Always conservative. N1 is not limiting, you may advance to max. THR on T/O if needed. (SP20.2)
ATM method:	Allowed on wet. Prohibited on contaminated rwy's. (FCTM3.14)
WINSHEAR:	ATM Prohibited. TO1 or TO2 permitted. (SP16.25) / VMCG critical (SP16.1)
Runway dry:	Neither wet nor contaminated. Grooved Rwy. (FOM. Def.)
Runway wet:	Surface covered w/ moisture to appear shiny. Less than 3/4m. 4000RVR or less. (FOM 8.1.5 / SP20.12)
Contaminated:	25% or more is covered by water 3mm deep or more. Slush. (FOM Def.) Loose snow greater than 3mm.Compressed snow. Ice/wet ice.
T/O Prohibited:	Slippery RWY AND x-wind >15kts OR slush/standing Water >1/2 inch/13mm (Note: Med / Poor Brk.)
LAND Prohibited:	Slippery RWY AND x-wind >10kts OR slush/standing Water >1 inch/25mm (Note: Med / Poor Brk.)
Braking Action NIL:	Operations **PROHIBITED / Cat II/III Land PROHIBITED** when poor/nil braking reported
Circling Approach:	**NOT AUTHORIZED** below 1000/3

Captain Procedural Reference Chart & Extras

OPERATIONS:
1. Review Flight Plan (sign release)
2. Review Weather Dept., (Enroute, Arrival, Alternate)
3. Review Notams (Departure, Destination, Alternate)
4. Review Estimated Takeoff Weight (runway analysis, Etc.)
5. Determine Limiting Gross weight for takeoff
6. Order Fuel Load…

AIRCRAFT:
1. Review aircraft log book (MEL's, Daily, Transit, Security, Compliance, Etc.)
    a. Correct Logbook
    b. Daily (48 hrs. incl. current flight)
    c. Transit: Every leg
    d. Max Thrust: 28 days / Autoland: 15 days
    e. Security Check (signed off)
2. Complete Aircraft Interior Preflight (IRS / FMC)
3. Acquire ATIS
4. Verify Required fuel onboard / Fuel receipts
5. Review Hazmat Paperwork (verify location, sec. etc. sign.)
6. Review Weight & Balance (Header / Payload / T.O. Weight / Var. ZFW? etc. sign)
7. Paper work complete (Signed: Release / Wt. Balance / Notac / DG / GD.)
    a. Release signed / Verify with Gen. Declaration / Permit to proceed
8. Acquire CLEARANCE
9. Obtain Performance Assessments; Load FMC & Verify Automation MCP Panel Set (LNAV / VNAV as req.)
10. Crew Briefing (QRH, Flying, Departure procedure Etc.)
11. Call for "PREFLIGHT" CHECKLIST
12. Verify APU power (Only).
13. Verify Door's closed / Select Fuel page

Before Push Back / Start Checklist:
1. Select Both APU's (L) & (R)
2. Confirm Ground Equipment removed

OBTAIN CLEARANCE TO PRESSURIZE **HYDRAULICS**
1. BEFORE START FLOW / Call for "BEFORE START" CHECKLIST
2. OBTAIN CLEARANCE FOR **PUSHBACK** IF REQUIRED

OBTAIN CLEARANCE TO START ENGINES (4 /1 then 2/3)
NORMAL FLOWS: BEFORE TAXI / BEFORE TAKEOFF, AFTER TAKEOFF, DESCENT. APPROACH / LANDING, AFTER LANDING (FLOW), SHUTDOWN AND SECURE CHECKLISTS…

Flight Planning: Fuel Burns
APU = 300 Kg per hour
Flt Burn =10,700 Kg per hour

Takes approx. 1.1 Touchdown
1.6 Go-around
1.8 Allow for gage error
Note: Plan on 5.0 for a complete circuit

Passenger Operations: (FOM 5.1.21)
T ype
E mergency classification: Red / Yellow / Medical
S pecial instructions
T ime remaining

Condition:
Red Emergency Landing or Ditching
Yellow Non normal / Declared emergency
Medical Diversion / Call company get phone patch
Threat Levels of conditions (Level 1-4)

Duty and Rest Limitations: (FOM 2.5.1)

Pound to Kilo / Kilo to Pound Conversions:
1.0 Pounds = 0.45359 Kilos
1.0 Kilo = 2.2046 Pounds

Maintenance Cat: (begins Midnight on Day of sign off)
A – Time Specified
B – 3 Consecutive Days (72 hrs.) exclude day of malfunction.
C – 10 Consecutive Days (240 hrs.) exclude day of malfunction.
D – 120 Days (2,880 hrs.) exclude day of malfunction
Note: If any expire during flight it is a NO–GO Only B / C can be extended.

Brake Cooling Schedule: (FCOM Volume I: 1.12.8)
Takeoff max reading 0-1

Airspeed out Body Angles: (maintain approx. 90% NI)

Cruise	3 Degrees
Holding	5 Degrees
Any Flap Extended:	7 Degrees
Flaps 25	4 Degrees

Russian Airspace:
Airways = 5 Kilometers wide
Engine OUT: 30 Degree turn off airway
Go 1.8 miles off track maximum
NOPAC / NAT: same but track 15 miles / change Alt. 500'

Engine Run-up Anti-Ice: (30 Seconds on R/W)
50% LCF
55% -8
60% 400

Extra Information

Penalty Additions: (ACARS)

1. Index
2. Maintenance – Type "ARM" 6R
3. Compare: Add penalty on Flt Plan in Box if not the same.

Quick Ref Pounds / Kilo Chart:

1,000 pounds	**=**	**.453 Kilo**
2,000	**=**	**.907**
2,500	**=**	**1,133**
3,000	**=**	**1,360**
4,000	**=**	**1,814**
5,000	**=**	**2,267**
10,000	**=**	**4,535**
18,000	**=**	**8,164**
25,000	**=**	**11,340**
30,000	**=**	**13,607**

3 / 2 Engine Taxi:
330,000 Kgs. Or less (1/2/4)
300,000 Kgs. Or less (1/4)

Flight Plan (Change of ZFW): (FOM 3.6.2)
ZFW more than 10K FPL (Get new flight plan)

Low Gross Weight AFT CG T.O Consideration:
Wt. = 220,0445 to 272,155
CG. = 24.3 -28.4

Dangerous Goods Hotline Number:
1(914) 701-6450

Cost Index Considerations:
Zero = Max Range Cruise
230 = LRC
9999 = MCT

Approach & Enroute Considerations

VNAV APPROACH (Acronym) ---- "Cross"

"L V S A"	**LNAV then VNAV**
N N P L	**Speed then Alt.**
A A E T	
V V E	
D "Window"	Gradient: 2.75-3.77

PRM Approaches:

1. Read pages 11-0 Jepps (attention all users)
2. When switching to TWR Freq. put TWR Freq. on "left" VHF
3. PRM Monitor Freq. in "right" VHF Radio

Breakout Maneuver:

1. Hand Flown missed approach initially
2. MCP Heading
3. MCP Altitude
4. Both FD Switches OFF then ON
5. Heading Select
6. FLCH

LDA / PRM Approaches: (Don't line up with RNWY until past the LDA MAP)

1. Traffic must be in-sight
2. Report traffic in-sight
3. Runway in-sight

Non-Precision Approaches:

Determining a 3 Degree Glide path formula:

$$\frac{\text{GRND SPEED} \times 10}{2} \quad \text{------ Example} \quad \frac{160\text{Kts} \times 10}{2} = \frac{1600}{2} = \textbf{800 IVSI rate of descent}$$

Radio Failure Procedures: FOM 10.2.5-6
USA: "Fly the highest" of:

1. Last ATC Clearance
2. Minimum Level for instrument approach procedures
3. ATC Advised expected flight level

ICAO:

1. Last assigned speed and level or the minimum FLT Level for (7 min. Europe / 20 min. ICAO)
2. Thereafter adjust FLT level and speed in accordance with filed flight plan.
   Contact:
   a. HF Frequency
   b. Other Station
   c. Other Aircraft
   d. Squawk Transponder mode a 7600
      Apply S.L.O.P. (Strategic Lateral Offset Procedure)
      1 Or 2 miles right of course.

Max Diversion Time: (MDT) 180 Minutes FOM 3.6.21

CPDLC (Controller Pilot Data Link Comm.)
AFN (?)
ADS (Automatic Dependent Surveillance)
CDA (Current Data Authority)
NDA (Next Data Authority
NDA (Next Data Authority
ATS (Air Traffic Services)
P.A.R. (Print Assess Respond) protocol

Log on 15-45 minutes before entry into NAT
If entering NAT directly after takeoff log on at FL180

Report to each new station:
Flight Level
Departure point
Destination point
A/C Registration #

Inadvertent "Emergency" Activation:
1. Turn off "Emergency Mode"
2. Tell via voice and free text "ADS Reset"

Manually Entered LONG / LATT: (Vol. II 12.31.16)
Long. Lat. --- 7 Characters
5050N becomes N50W050 etc.

RNP Requirements: FOM 7.1.2

ETP Airport Wx minimums: FOM 3.3.3
15 minutes of gas at 1,500 feet

Alternate Requirements:(FOM 3.7.2)

2 Runways	Add	200 + ½ mile
1 Runway	Add	400 + 1 mile
Prec. Cat II / III	600/2	
Non Prec.	800/2	

Interception: FOM 10.2.12-13