Electrical power up (APU power)

BATTERY switch ..... Guard closed

APU switch ..... Start

When the APU GEN OFF BUS light is illuminated:

- APU GENERATOR bus switches ..... ON

Position lights..... ON

Left AC powered fuel pump..... ON

EMERGENCY EXIT LIGHTS switch .....Guard closed

Air conditioning panel..... Set

- PACK switches..... AUTO
- Engine BLEED air switches..... ON
- APU BLEED air switch ..... ON

IRS mode selectors..... OFF, then NAV

CDU Preflight Procedure

Enter the present position on the SET IRS POS line. Use the most accurate latitude and longitude.

Enter data in all the boxed items on the following CDU pages.

ROUTE page:

- Enter the ORIGIN and DESTINATION
- Enter the route
- Activate and execute the route

DEPARTURES page:

- Select the runway and departure routing.
- Execute the runway and departure routing.

LEGS page:

- Verify the correct RNP for the departure as needed.

ARRIVALS page:

- Select expected arrival runway and routing.
- Execute expected arrival runway and routing

PERF INIT page:

- Enter the ZFW
- Enter the PLAN fuel if fueling still in progress.
- Enter the Reserves fuel, Cost index and Flight Level.

N1 LIMIT page:

- Enter or verify OAT. Confirm the OAT value is correct and reasonable for the ambient conditions

TAKEOFF REF page:

- Enter the CG
- Verify that a trim value is shown
- Select or enter the takeoff V speeds
- Verify or enter an acceleration height

Preflight Procedure

YAW DAMPER ..... ON

CAB/UTIL ..... ON

IFE/PASS SEAT ..... ON

FASTEN BELTS ..... AUTO or ON

APU (if not started) ..... START

WINDOW HEAT ..... ON

ENGINE HYDRAULIC PUMPS ..... ON

AIR ..... Set

- TRIM AIR switch ..... ON
- RECIRCULATION FAN switches ..... AUTO
- Air conditioning PACK switches..... AUTO
- ISOLATION VALVE switch..... OPEN
- Engine BLEED air switches..... ON
- APU BLEED air switch ..... ON

Cabin pressurization panel..... Set

- FLIGHT ALTITUDE indicator..... Cruise altitude
- LANDING ALTITUDE indicator.....Destination field elevation
- Pressurization mode selector .....AUTO

MCP..... Set

- COURSE(S) ..... Set
- FLIGHT DIRECTOR switch ..... ON (PF first)

MINIMUMS selector – Set decision height or altitude reference (RADIO)

BAROMETRIC selector – Set local altimeter setting

AUTO BRAKE select switch ..... RTO

Do the PREFLIGHT CHECKLIST.

PREFLIGHT

Oxygen	Tested, 100%
Navigation transfer and display switches	NORMAL, AUTO
Window heat	ON
Pressurization mode selector	AUTO
Flight instruments	Heading ___, Altimeter ___
Parking brake	Set
Engine start levers	CUTOFF

Before Start Procedure

MCP..... Set

- AUTOTHROTTLE ARM switch ..... ARM
- IAS/MACH selector ..... Set V2
- LNAV as needed..... As needed
- VNAV..... Arm
- Initial heading..... Set
- Initial altitude..... Set

If pushback is needed

- System A HYDRAULIC PUMP switches .....OFF
- System B electric HYDRAULIC PUMP switch ..... ON

If pushback is not needed:

- Electric HYDRAULIC PUMP switches..... ON

ANTICOLLISION light switch ..... ON

Stabilizer Trim ..... Set ___ UNITS

Fuel panel ..... Set

- If the center tank fuel quantity exceeds 460 kilograms:
  - LEFT and RIGHT CENTER FUEL PUMPS ..... ON
  - Verify that the LOW PRESSURE lights illuminate momentarily and then extinguish.
  - If the LOW PRESSURE light stays illuminated turn off the CENTER FUEL PUMPS switch.
- AFT and FORWARD FUEL PUMPS ..... ON
- Verify that the LOW PRESSURE lights are extinguished.

Do the BEFORE START checklist.

BEFORE START

Flight deck door	Closed and locked
Fuel	___ KGS, Pumps ON
Passenger signs	___
Windows	Locked
MCP	V2 ___, HEADING ___, ALTITUDE ___
Takeoff speeds	V1 ___, VR ___, V2 ___
CDU preflight	Completed
Rudder and aileron trim	Free and 0
Taxi and takeoff briefing	Completed
Anti collision light	ON

Engine Start Procedure

Air conditioning PACK switches ..... OFF

ENGINE #2 (or 1) START switch ..... GRD

When N1 rotation is seen and N2 is at 25%

Engine start lever ..... IDLE detent

Wait for 56% N2 and starter OFF

ENGINE #1 (or 2) START switch ..... GRD

When N1 rotation is seen and N2 is at 25%

Engine start lever ..... IDLE detent

Wait for 56% N2 and starter OFF

When pushback or towing is complete:

System A HYDRAULIC PUMPS switches ..... ON

Before Taxi Procedure

GENERATOR 1 and 2 switches ..... ON

PROBE HEAT switches ..... ON

WING ANTI–ICE switch ..... As needed

ENGINE ANTI–ICE switches ..... As needed

AIR ..... Set

- PACK switches ..... AUTO
- ISOLATION VALVE switch..... AUTO
- APU BLEED air switch ..... OFF

APU switch ..... OFF

ENGINE START switches ..... CONT

Flap lever ..... Set takeoff flaps

Flight controls ..... Check

Transponder mode selector ..... As needed

Do the BEFORE TAXI checklist.

BEFORE TAXI

Generators	On
Probe heat	ON
Anti-ice	___
Isolation valve	AUTO
Engine start switches	CONT
Recall	Checked
Autobrake	RTO
Engine start levers	IDLE detent
Flight controls	Checked
Ground equipment	Clear

Takeoff Procedure

Do the BEFORE TAKEOFF checklist.

BEFORE TAKEOFF	
Flaps	___, Green light
Stabilizer trim	___ Units

When entering the departure runway:

- STROBE light switch ..... ON
- Transponder ..... TA/RA
- Verify that the brakes are released

When cleared for takeoff:

- LANDING light switches ..... ON

Advance the thrust levers to approximately 40% N1

Push the TO/GA switch

At VR, rotate toward 15° pitch attitude (Caution! Tail Strike pitch is 11.0).

After liftoff, follow F/D commands.

Positive rate of climb on the altimeter:

Set the landing gear lever to UP.

Above 400 feet radio altitude verify VNAV engaged

Call “FLAPS ___” according to the flap retraction schedule

Engage the autopilot when above the minimum altitude for autopilot engagement

After flap retraction is complete:

Set the AUTO BRAKE select switch to OFF

Set the engine start switches to as needed (AUTO, if TAI is OFF)

Set the landing gear lever to OFF after landing gear retraction is complete

Do the AFTER TAKEOFF checklist.

AFTER TAKEOFF	
Engine bleeds	ON
Packs	AUTO
Landing gear	UP and OFF
Flaps	UP, No lights

Climb and Cruise Procedure

At transition altitude, set and crosscheck the altimeters to standard

At or above 10,000 feet MSL, set the LANDING light switches to OFF

Before the top of descent:

Modify the active route as needed for the arrival and approach.
Set MCP ALT as needed.

Set and crosscheck the altimeters according to METAR data at place of destination

Descent Procedure

Enter VREF on the APPROACH REF page

Set the RADIO/BARO minimums as needed for the approach.

Set or verify the navigation radios and course for the approach

Set the AUTO BRAKE select switch to the needed brake setting

At or above 10,000 feet MSL, set the LANDING light switches to ON.

Do the DESCENT checklist.

DESCENT

Pressurization	LAND ALT ___
Recall	Checked
Autobrake	___
Landing data	VREF ___, Minimums ___
Approach briefing	Completed

Approach Procedure

The Approach Procedure is normally started at transition level

For an ILS approach, select the appropriate localizer frequency

Set VOR/LOC before approach (before intersecting the landing area)

Set the passenger signs as needed.

When descending below the transition level, set and crosscheck the altimeters to current METAR data

Do the APPROACH checklist.

APPROACH

Altimeters	___

Landing Procedure - ILS

Approaching intercept heading:

- Flap lever .....5, according to the flap extension schedule

Current flap position	At speed tape "Display"	Select flaps	Command speed for selected flaps
UP	"UP"	1	"1"
1	"1"	5	"5"
5	"5"	15	"15"
15	"15"	30 or 40	($V_{REF}30$ or $V_{REF}40$) + wind corrections

When on localizer intercept heading:

- verify that the ILS is tuned and identified
- verify that the LOC and G/S pointers are shown.
- Arm the APP mode. The VOR/LOC mode may be armed first, if needed.
- If a dual channel approach is desired, engage the second autopilot.

At glideslope alive:

- Landing gear lever .....DOWN
- Flap lever 15
- Engine start switches .....CONT
- Speed bake .....ARM

At glideslope capture:

- Flap lever ..... Landing position

Do the LANDING checklist.

LANDING

Engine start switches..... CONT

Speedbrake .....ARMED

Landing gear..... Down

Flaps .....___, Green light

When at least 300 feet below the missed approach altitude

- Set the missed approach altitude on the MCP.

Single AP landing:

- disengage the autopilot and disconnect the autothrottle no later than the
- minimum use height for single autopilot operation (50/158 ft AGL).

Double AP landing:

Disengage the autopilot after touchdown.

Go–Around and Missed Approach Procedure

TO/GA switch..... PUSH

Flap lever 15

Verify:

- rotation to go–around attitude
- thrust increases

Verify a positive rate

- Landing gear lever ..... UP

Verify that the missed approach altitude is set.

At 400 ft AGL verify LNAV or select HDG SEL

Verify that the missed approach route is tracked.

At acceleration height, set the flap lever according to the flap retraction schedule.

Select LVL CHG (if flaps not UP) or VNAV (if flaps UP)

Set the landing gear lever to OFF after landing gear retraction is complete.

Set the engine start switches as needed.

Do the AFTER TAKEOFF checklist.

Landing Roll Procedure

Verify that the thrust levers are closed.

Verify that the SPEED BRAKE lever is UP.

Without delay, move the reverse thrust levers to the interlocks and hold light pressure until the interlocks release.

Apply reverse thrust as needed.

By 60 knots, start movement of the reverse thrust levers to be at the reverse idle detent before taxi speed.

Before taxi speed, disarm the autobrake. Use manual braking as needed.

If an autoland was accomplished, disconnect the autopilot before turning off the runway.

After Landing Procedure

Start the After Landing Procedure when clear of the active runway.

APU ..... Start
PROBE HEAT ..... AUTO
Exterior lights ..... As needed
ENGINE START switches ..... OFF
Weather radar ..... OFF
AUTO BRAKE select switch ..... OFF
Flap lever ..... UP
Transponder mode selector ..... ALT ON

Run the engines for at least 3 minutes

Shutdown Procedure

Start the Shutdown Procedure after taxi is complete.

Этот раздел на переработке. См. FCOM/SOP

SHUTDOWN

Fuel pumps . . . . . **OFF**
Probe heat . . . . . **OFF**
Hydraulic panel . . . . . **Set**
Flaps . . . . . **UP**
Parking brake . . . . . **___**
Engine start levers . . . . . **CUTOFF**
Weather radar . . . . . **Off**

Secure Procedure

IRS mode selectors ..... OFF
EMERGENCY EXIT LIGHTS switch ..... OFF
WINDOW HEAT switches ..... OFF
Air conditioning PACK switches ..... OFF

Do the SECURE checklist.

SECURE

IRSs . . . . . OFF
Emergency exit lights . . . . . OFF
Window heat . . . . . OFF
Packs . . . . . OFF

Таблица для выбора эшелона полета на коротких дистанциях

Short Trip Fuel and Time

Ground to Air Miles Conversion

AIR DISTANCE (NM) HEADWIND COMPONENT (KTS)					GROUND DISTANCE (NM)	AIR DISTANCE (NM) TAILWIND COMPONENT (KTS)				
100	80	60	40	20		20	40	60	80	100
93	80	69	61	55	50	46	42	39	36	34
161	143	129	118	108	100	93	87	81	77	73
227	206	188	174	161	150	140	132	125	118	112
291	267	246	229	213	200	188	178	168	160	152
355	327	304	283	266	250	236	224	212	202	193
417	387	361	338	318	300	284	270	257	245	234
480	447	418	392	370	350	332	316	301	288	276
543	507	475	447	422	400	380	362	345	330	317
607	567	533	502	475	450	428	408	390	373	358
673	629	591	557	527	500	476	453	433	415	398

Trip Fuel and Time Required

AIR DIST (NM)		LANDING WEIGHT (1000 KG) 40	45	50	55	60	65	70	TIME (HRS:MIN)
50	FUEL (1000 KG)	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0:14
	ALT (FT)	12000	12000	11000	8000	8000	10000	8000	
100	FUEL (1000 KG)	0.8	0.9	0.9	1.0	1.0	1.1	1.1	0:23
	ALT (FT)	18000	17000	16000	15000	15000	15000	16000	
150	FUEL (1000 KG)	1.1	1.2	1.2	1.3	1.3	1.4	1.5	0:31
	ALT (FT)	25000	24000	24000	23000	23000	22000	21000	
200	FUEL (1000 KG)	1.3	1.4	1.5	1.6	1.6	1.7	1.8	0:38
	ALT (FT)	31000	29000	27000	26000	26000	25000	24000	
250	FUEL (1000 KG)	1.5	1.6	1.7	1.8	1.9	2.0	2.1	0:44
	ALT (FT)	39000	37000	35000	31000	31000	31000	29000	
300	FUEL (1000 KG)	1.7	1.8	2.0	2.1	2.2	2.3	2.4	0:51
	ALT (FT)	41000	41000	39000	37000	35000	35000	33000	
350	FUEL (1000 KG)	1.9	2.0	2.2	2.3	2.4	2.6	2.7	0:57
	ALT (FT)	41000	41000	39000	39000	37000	35000	35000	
400	FUEL (1000 KG)	2.1	2.2	2.4	2.5	2.7	2.8	3.0	1:03
	ALT (FT)	41000	41000	41000	39000	39000	37000	35000	
450	FUEL (1000 KG)	2.3	2.5	2.6	2.8	2.9	3.1	3.3	1:10
	ALT (FT)	41000	41000	41000	41000	39000	37000	35000	
500	FUEL (1000 KG)	2.5	2.7	2.8	3.0	3.2	3.4	3.5	1:17
	ALT (FT)	41000	41000	41000	41000	39000	37000	35000	

Based on 280/.78 climb, Long Range Cruise and .78/280/250 descent.