First Officer (FO) Flows

Southwest Virtual Airlines

➢ PREFLIGHT FLOW

AIRCRFT LOGBOOK……CHECK
LANDING GEAR PINS……VERIFY 3 ABOARD
(MAX) FLASHLIGHT…… TEST (AS INSTALLED)
CIRCUIT BREAKERS……CHECK
DC METER SELECTOR……BAT
BATTERY SWITCH……ON/Guarded
FUEL PANEL……1 PUMP ON
HYDRAULIC PUMP ELEC……OFF
AIR CONDITIONING PANEL……CHECK
LANDING GEAR LEVER……DOWN
FIRE/OVERHEAT WARNING……TEST
AC METER SELECTOR……GRD POWER
GRD PWR……ON
APU SWITCH……START
APU GENERATOR BUS SWITCHES……ON
(MAX) APU DOOR LIGHT……EXTINGUISHED
IRS L AND R……NAV
(MAX) MAINT LIGHT……EXTINGUISHED
ELECTRICAL PANEL……SET
EMERGENCY EXIT LIGHTS SWITCH……
……ARMED/Guarded
ENVIRONMENTAL CONTROLS……AS REQD
CDU……CHECK FMC CONFIGURATION
CDU……ENTER PRESENT POSITION
FLAP LEVER……VERIFY POSITION
PARKING BRAKE……VERIFY SET
WHEEL WELL FIRE WARN……CHECK
EXTERIOR LIGHTS……CHECK
FLIGHT DECK DOOR ACCESS
SYSTEM……TEST

EXTERIOR INSPECTION

➢ FLIGHT DECK PREP FLOW (NG / MAX)

EXTERIOR LIGHTS……SET
CRASH AXE……STOWED
LANDING GEAR PINS……VERIFY 3 ABOARD
LIFE VESTS……CHECK
PBE……CHECK
FIRE EXTINGUISHER……CHECK/SECURED
EFB PREFLIGHT……ACCOMPLISH
EFB 28V DC CHARGING PLUG AND CORDS
PREFLIGHT……ACCOMPLISH
ADDITIONAL……CHECK
SEAT……ADJUST
RUDDER PEDALS……ADJUST
FLIGHT DECK LIGHT……SET AS DESIRED
ESCAPE STRAP……CONNECTED
CABIN TEMP……MONITOR AND ADJUST
WING-BODY OVHT……TEST
PRESSURIZATION PANEL……SET
IGNITION SELECTOR SWITCH…… IGN R
ATIS……ACQUIRE
LUVCARS CLIENT……LOG ON
DESIRED LEG ……SELECT/DISPATCH
CLEARANCE….. ACQUIRE (WHEN AVAILABLE)
FMC……PROGRAM
PWB …….. PROGRAM TAKEOFF CONDITIONS
MODE CONTROL PANEL …….. SET
EFIS CONTROL PANEL……SET

➢ FLIGHT DECK PREP FLOW (NG CONT.)

ENGINE INSTRUMENTS ……CHECK
OIL QUANTITY……CHECK
HYDRAULIC QUANTITY ……CHECK
AUTOPILOT INDICATORS PANEL …… TEST
DISPLAY SELECT PANELS …… NORM
FLIGHT INSTRUMENTS ……CHECK
CLOCK ……DAY, MONTH, YEAR/SET TO UTC
GPWS ……TEST
CDU…… RTE 2/2 PAGE
TRANSPONDER ….. TEST/SET, SELECT TA/RA
VHF NAVIGATION RADIOS …… SET
VHF COMMUNICATIONS RADIO AND AUDIO
CONTROL PANEL…… SET
CREW OXYGEN SYSTEM……CHECK
(-700) SMOKE GOGGLES (AS
INSTALLED)……CHECK
SUN VISOR……CHECK
FLIGHT DECK SLIDING
WINDOW/HANDLE……CLOSED AND LOCKED

➢ FLIGHT DECK PREP FLOW (MAX CONT.)

ENGINE INSTRUMENTS……CHECK
OIL QUANTITY……CHECK
HYDRAULIC QUANTITY ……CHECK
AUTOPILOT INDICATORS PANEL …… TEST
FLIGHT INSTRUMENTS ……CHECK
AUXILIARY DISPLAY……CHECK UTC, XPDR,
MONTH, YEAR, NOSE NUMBER
GPWS ……TEST
FIRST OFFICER SELECTOR……SELECT C
CDU…… RTE 2/2 PAGE
TRANSPONDER ….. TEST/SET, SELECT TA/RA
VHF NAVIGATION RADIOS …… SET
VHF COMMUNICATIONS RADIO AND AUDIO
CONTROL PANEL…… SET
CREW OXYGEN SYSTEM……CHECK
SUN VISOR…… CHECK
FLIGHT DECK SLIDING WINDOW/HANDLE
……CLOSED AND LOCKED

➢ THROUGH FLIGHT FLOW

IRS L AND R ……ALIGN, THEN NAV
FMC/CDU ……ENTER PRESENT POSITION
(MAX) MAINT LIGHT …… EXTINGUISHED
PRESSURIZATION PANEL…… SET
IGNITION SELECTOR SWITCH…AS REQUIRED
ATIS …… ACQUIRE
FMC……PROGRAM
CPDLC …… LOG ON
LUVCARS INITIALIZATION …… PROGRAM, AS
REQUIRED
CLEARANCE…… ACQUIRE (WHEN AVAILABLE)
PWB ……..PROGRAM TAKEOFF CONDITIONS
MODE CONTROL PANEL…… SET
FLIGHT INSTRUMENTS …… CHECK
TRANSPONDER …… SET, SELECT TA/RA
VHF NAVIGATION RADIOS ……SET
VHF COMMUNICATIONS RADIO AND AUDIO
CONTROL PANEL……SET
(-700) SMOKE GOGGLES (AS
INSTALLED) …… CHECK
CREW OXYGEN SYSTEM…… CHECK
FLIGHT DECK SLIDING WINDOW/HANDLE……
CLOSED AND LOCKED
EFB PREFLIGHT …… ACCOMPLISH

Captain Briefing	Pilot Flying
• Assign PF/PM Duties	• Clearance
• SIP Page	• MCP and VHF NAV radio
• Alternates	• FMC route
• Special Airports	• Automation and navigation
• MEL items	• HGS T/O
• NOTAMs	• Required min climb gradient
• Adverse weather	• Engine-out turn procedure
• Taxi routing hotspots/SMGCS	• Transition altitude
• Runway conditions	
• RTO considerations	

✓ BEFORE START CHECKLIST

PWB Takeoff Data Review

Review PWB Takeoff Data (LUVCARS)
Load FMC (LUVCARS)
PERF INIT – Select “LOAD” prompt (FMC)
Review the T/O REF pages (FMC)
Select “ACCEPT” (FMC)
(CA) – Review PERF INIT, N1 LIMIT, T/O REF

✓ BEFORE PUSH CHECKLIST

➢ BEFORE START FLOW

PUSH BACK TIME……NOTED
ANTI-COLLISION LIGHT……ON
ISOLATION VALVE……CONFIRM AUTO
RECIR FAN(S)……AUTO
AIR CONDITIONING ……PACKS OFF

ENGINE START

“START #___” ---- “OIL PRESSURE”
“LIGHT OFF” ---- “ROLL BACK”
START SWITCH……CONT
IGN SWITCH ……LEFT
START #___ OR SINGLE ENG TAXI
---- PUSH COMPLETE (CREW CLEAR) ----
CLOCK……START

➢ AFTER START FLOW

ELECTRICAL……GENS ON ENG
APU SWITCH……AS REQ
PROBE HEAT……ON
ENGINE & WING A-ICE……AS REQ
HYD PNL……A SYS ON
A/C & PRESS ……SET
WHEEL WELL LIGHT……OFF
OIL QUANTITY……CHECK
START LEVERS……VERIFY IDLE
FLAP LEVER……“STANDING BY FLAPS”
(CA) “FLAPS ___” --- (FO) “FLAPS__”
(CA) “CONTROL CHECK”
(FO) “CONTROL CHECK”

✓ BEFORE TAXI CHECKLIST

--------- 1 MIN PRIOR TO TAKEOFF ---------

➢ BEFORE TAKE OFF FLOW

A/C & PRESSURIZATION……SET
WX RADAR OR TERRAIN……SET 4°
APU……AS REQ

------ IF CHANGES TO FMC OR PWB DATA -----

✓ DEPARTURE PLAN CHECKLIST

✓ BEFORE TAKEOFF CHECKLIST

WHEN CLEARED ONTO RWY
LIGHTS……SET

NORMAL TAKEOFF

(PF)	(PM)
N1 TO 40% THEN INCREASE	
-PUSH TO/GA-	
“SET TAKEOFF THRUST, XX.X”	“XX.X, SET”
	“80 kts”
	“V1”
	“ROTATE”
“LDG GR UP”	“POS RT, LDG GR UP”
CLIMB AT V2 + 20	
@ 400 ft	
“LNAV OR HEADING SEL”	
@ MIN CLEANUP (1000)	
“SET SPEED” (IF REQUIRED)	Ensure SPD Bug is at the UP bug
“FLAPS UP” on schedule	REPEAT PF CALLS
"CLIMB THRUST”	SET/VERIFY THRUST

TO/FLAPS	DISPLAY	SPEED	SET
25	V_2 + 15 15 5 1	V_2 + 15 170 180 200	15 5 1 UP
15 OR 10	V_2 + 15 5 1	V_2 + 15 180 200	5 1 UP
5	V_2 + 15 1	V_2 + 15 200	1 UP
1	1	200	UP

- (PM) After the flaps indicate fully retracted, Landing Gear – OFF (NG only)
  AUTO BRAKE – OFF
- @ 5000 ft, select “N1 LIMIT” page on FMC and delete CLB-1 or CLB-2 (NG ONLY).

CLIMB [@ 10,000 FT]

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"10,000 FT"……*BOTH*
(CA) ATTEND BUTTON……..PUSH

➢ **CLIMB FLOW**

PRESSURIZATION……..CHECK
(FO) CABIN TEMP……..CHECK
(CA) START SWITCHES……AS REQD
(CA) APU……..AS REQD
FUEL SYSTEM……..MONITOR
VHF #2 RADIO……GUARD (121.5)
➔ (PF) calls **"CLIMB CHECKLIST"**
[@ FL180 or Transition ALT]
"xxx ft, Standard Set"……*BOTH*
(FO) WING / LOGO LIGHTS……OFF
(CA) LDG / RWY TURN LIGHTS……OFF

-------BEFORE TOP OF DESCENT---------

ATIS/GATE……..ACQUIRE
PWB……..REQUEST LANDING DATA
PWB……..REVIEW DATA
AUTOBRAKES……AS REQD
APPROACH SPEEDS (INIT REF)……SET
MINIMUMS……..SET

ARRIVAL BRIEFING (PF)

STAR/transition - ALT/SPEED restrictions - Trans level - ADVERSE WX - NOTAMs - SIP - Special Airports - MEL items - Apprch TYPE - Flaps - Braking - Touchdown point/exit plan - LAHSO - Xfer of aircraft - Taxi RTE/hotspots/SMGCS -

✓ **DESCENT CHECKLIST**

----------APPROACHING [FL 180]----------

(CA) LDG/RWY TURN LIGHTS……ON
(CA) START SWITCHES……..AS REQD
(FO) WING LOGO (NIGHT)……..ON
(FO) ALTIMETER……..SET
SHOULDER HARNESS……..FASTEN
(PF)
"FLIGHT LEVEL 180, XX.XX, APPROACH CHECKLIST."
(PM)
"FLIGHT LEVEL XXX, _____."

✓ **APPROACH CHECKLIST**

APPROACHING [10,000]
(CA)
ATTENDANT CALL……PRESS
ATTENDANT CALL……..MONITOR
"10,000 FT, FLIGHT ATTENDANTS NOTIFIED"
(FO)
"10,000 FT"
PRESSURIZATION……..CHECK
SEATBELT SIGN……ENSURE ON
NOTE:
CONSTANT SPEED DESCENTS
250 kts @ IDLE = 1,700 fpm
210 kts @ IDLE = 1,300 – 1,400 fpm

TYPE	ILS/HGS	RNAV	NON-PR
LAT	VOR LOC/APP	LNAV	LNAV / VOR LOC / HDG
VERT	APP	VNAV	VNAV / V/S

Approach category D minima (141-165 kts)

- When approaching, and before decelerating below flaps up maneuvering speed (UP), select flaps 5.
- When approaching, and before decelerating below flaps 5 maneuvering speed (5), select flaps 15.
- When approaching, and before decelerating below flaps 15 maneuvering speed (15), select flaps 25, or final landing flaps.

CONFIGURATION CALLS & SEQUENCE

➔ **12-15 nm from FAF**

(PF) Begin slowing from **250 kts to flaps up** maneuvering speed by **10 nm (210 clean)**

➔ **On base leg or 5 nm from the FAF**

(PF) Call, **"Flaps 5."**
(PM) Repeat, **"Flaps 5."**
Set speed to **180 kts or flaps 5 speed bug**

➔ **3 nm from FAF OR (G/S ALIVE)**

(PF) Call, **"Landing Gear Down, Flaps 15."**
(PM) Repeat, **"Landing Gear Down, Flaps 15."**
Set speed to **150 kts or to flaps 15 bug**
(CA) SPEEDBRAKE……ARM

➔ **2 nm FROM FAF**

(PF) Call, **"Flaps ___."** Slow to **VTARGET**.
(PM) Repeat, **"Flaps ___."** Select flaps ___.
(PF) Call, **"Before Landing Checklist."**
FLAPS SET AND NO LATER THAN 1,000 FT ABOVE TDZE COMPLETE THE:

➔ **BEFORE LANDING CHECKLIST**

Setting the MCP Altitude to Zero

MCP altitude must be set to zero for all instrument approaches, except circle-to-land procedures.

APP MODE:

- Cleared for the approach
- On a published segment of the approach
- VOR/LOC captured
- GS captured

VNAV MODE:

- Cleared for the approach
- On a published segment of the approach
- Final segment roll mode verified in FMA
- Prior to GP intercept
- VNAV PTH in FMA

V/S MODE:

- Cleared for the approach
- On a published segment of the approach
- At the FAF altitude, if there are no restrictions inside of the FAF, after compliance with stepdown restrictions inside of the FAF is ensured

Visual Approach Profile

➔ DOWNWIND: FLAPS 5 – 5 maneuver
➔ PRIOR TO BASE LANDING GEAR DOWN
Flaps 15
➔ BASE FLAPS 30/40 – VTGT

@ 1,000 ft above TDZE Callouts:

POSITION	PF	PM
AT 1,000 FT ABOVE TDZE	"1,000 FT, AIRSPEED___, SINK RATE."	"1,000 FT"
ON FINAL	DISENGAGE THE AUTOPILOT AND AUTOTHROTTLE NO LOWER THAN 50 FT AGL.	"500" IF NO AUTO CALLS. "100" "50" "30" "10"

ILS APPROACH CALLS:

POSITION	PF	PM
LOC CAPTURE	"VOR LOC CAPTURE"	
GS INTCPT	"GLIDESLOPE CAPTURE"	
@ MARKER	"XXXX AT (ALT)	"CROSS-CHECKED"
1,000	"1,000 FT, AIRSPEED____, SINK RATE___."	"1,000 FT"
@ 500 AGL		"500"
100 ABOVE DA	"GOING OUTSIDE"	"APPROACHING MINIMUMS"
@ DA	"LANDING OR GO AROUND"	"MINIMUMS"

RNAV (GPS) AND (RNP) APPROACH CALLS:

POSITION	PF	PM
ON APPCH	"LNAV AND VNAV PATH"	Verify FMA
FAF	"(FIX) at (ALT)"	"CROSS-CHECKED"
@ 1,000 FT ABOVE TDZ	"1,000 FT, AIRSPEED____, SINK RATE___."	"1,000 FT"
@ 500 AGL		"500"
100 ABOVE DA	"GOING OUTSIDE"	"APPROACHING MINIMUMS"
@ DA OR DDA	"LANDING OR GO AROUND"	"MINIMUMS"

NON-PRECISION V/S APPROACH CALLS:

POSITION	PF	PM
INTCP FINAL	"VOR LOC CAPTURE"	Verify FMA
FAF	"(FIX) at (ALT)"	"CROSS-CHECKED"
@ 1,000 FT ABOVE TDZ	"1,000 FT, AIRSPEED____, SINK RATE___."	"1,000 FT"
@ 500 AGL		"500"
100 ABOVE DDA	"GOING OUTSIDE"	"APPROACHING MINIMUMS"
@ DDA	"LANDING OR GO AROUND"	"MINIMUMS"

GO AROUND/MISSED APPROACH CALLS:

PF	PM
"GO AROUND" Select TO/GA Advance thrust Rotate to 15°	"GO AROUND"
"FLAPS 15"	"FLAPS 15"
"LANDING GEAR UP, SET MISSED APPROACH ALTITUDE"	"POSITIVE RATE, LANDING GEAR UP"
AT 400 FT "HDG SEL OR LNAV"	"HDG SEL OR LNAV"
1,000 ft AGL "FLAPS 5" @ BUG OR VREF+15	"FLAPS 5"
If appropriate "I HAVE THE THRUST" OR "CLIMB TRUST"	Verify climb thrust, advise ATC of go-around.
"FLAPS 1" @ BUG OR 170	"FLAPS 1"
"FLAPS UP" @ UP BUG OR 190	"FLAPS UP"

LANDING CALLS:

POSITION	PF	PM
AT TOUCHDOWN		"EXTENTED" OR "NO SPEEDBRAKE"
NOSE WHEEL ON THE GROUND	SET REV TO DETENT 2	"DEPLOYED" OR "NO REVERSE"
		"AUTOBRAKE DISARM"
		"60 KTS"

(CA) "FLAPS UP"
(CA) SPD BRK……..DN / LIGHTS……OFF

➢ **AFTER LANDING FLOW (FO)**

FLAPS……..(FO) "FLAPS UP"
CLOCK……START
RADAR……..TEST/OFF
AUTOBRAKE SWITCH……..OFF
APU……..START
ENG START SW……..OFF
LIGHTS……..AS REQ
ANTI-ICE……SET
PROBE HEAT……..OFF
WINDOW HEAT……..OFF
APU GEN BUS Switches……ON
OPERATIONS……CALL

➢ **PARKING SHUTDOWN FLOW (FO)**

ANTI-COLLISION……..OFF
PACKS / AIR……..AS RQD
HYD PUMPS……..ELEC OFF
APU ……..AS RQD
TRANSPONDER ……STBY
AND SET ALL ZEROS
LUVCARS POSTFLIGHT
P/C AIR / PACK CONFIGURED
APU

AFTER SHUTDOWN (TERMINATING)

(CA) POST FLIGHT……..ACCOMPLISH
(FO) Crew change or terminating; enter fuel and oil in logbook.