



SimCheck Airbus A300B4-200

Normal procedures

**For use with Microsoft Flight
Simulator X**

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CONTENTS

Contents	2
Symbols and abbreviations used	9
Operation speeds	9
Take off speed schedule	10
Approach speed schedule	10
WIND CORRECTION TABLE	11
FINAL TARGET SPEED DETERMINATION	11
Example	11
Speedbug settings	12
Cockpit scans	13
CM1 and CM2 cockpit preparation	15
CM1: Overhead panel scan	15
CM2: Overhead panel scan	16
Wing de-ice (if icing conditions are expected)	16
RADAR and ATC Transponder	16
ADF controls panel	16
VHF and HF communications	16
INS	16
Clock	16
Stand-by HSI and RMI compasses	16
VSI	16
ASI	16
ADI	16
Radar altimeter	17
Altimeter	17
Marker beacon	17
Stby horizon	17
STBY altimeter	17
STBY ASI	17
FD bars switch	17
AFCS	17
Final cockpit preparation	18
(CM 1-3) Fuel quantity	18
(CM1-2) COM/NAV frequencies	18
(CM2) Field information	18
(CM2) Window heat panel	18
(CM2) SIGNS	18
(CM3) Cabin pressure	18
(CM3) Flight recorder	18
(CM2) Preparation check list	18
Before pushback or start	19

(ALL) Total weight/MMO	19
(All) Take-off data & V-bugs	19
(CM2) N1 LIM computer	19
(All) Altimeter	19
(CM1-2) Ground crew & pushback or/and start-up clearance	19
(CM2) Beacon	19
(CM1) Parking brake	19
(All) Windows	19
(CM3) Fuel system	19
(CM3) Air bleed	20
Before pushback checklist	20
Engine start	21
Cautions	22
After start	23
(CM1) Engine start panel	23
(CM2) Ice protection	23
(CM1) Trim settings	23
(CM3) Elec power & load shed	23
(CM3) Hydraulic panel	23
(CM3) Air bleed panel	23
(CM3) APU	23
(CM1) Yaw dampers & Pitch trims	23
(CM2) Fasten S/Belts	23
(CM2) Master warning	24
(ALL) Flaps and Slats	24
(CM1) Ground crew contact	24
(ALL) After start check list	24
Taxi	25
(CM2) Taxi clearance	25
(CM1) Grnd spoilers	25
(CM1) Parking brake	25
(CM1) EXT LTS	25
(CM1-3) Brakes	25
(CM2-3) Flight controls	25
(CM3) Cross check with FCPI and announce:	25
(ALL) Take-off data & V-Bugs	25
(CM2-3) N1 LIM Computer	25
(CM1-2) NAV/COM & AFCS	26
(CM1-2) Flight instruments	26
(CM3) Cabin Press & Temp	26
(CM3) T/O CONFIG TEST	26
(ALL) Take off briefing	26

(CM3) Taxi checklist	26
Before take-off	27
(CM3) Brake temp	27
(CM3) Brake fans	27
(CM1-2) Take-off clearance	27
(CM3) Air bleed systems	27
(CM3) CTR FUEL PUMPS	27
(CM2) Auto brake	27
(CM3) Ignition	27
(ALL) Compasses	27
(CM1) Autothrottle	27
(CM2) Transponder	27
(CM2) EXT LTS	27
(CM1) Probe heat	27
(CM1) Master warning	28
(ALL) Before take-off checklist	28
Take OFF	29
TAKE OFF WITH ATS	29
Rolling take-off:	29
Static take-off	29
Take off without ATS	29
Rolling take-off	29
Static take off	29
(CM1) Aircraft control	30
Airspeed indicators	30
V Speeds	30
(CM1) Aircraft handling	30
Landing gear	30
(CM3) Ground spoilers	30
(CM3) EXT LTS	30
(CM1-2) Aircraft handling	30
(CM2) N1 LIM COMPUTER	30
Slats/Flaps & Krüger	31
(CM1) Initial climb speed	31
(CM3) Ignition	31
(CM3) Airbleed system	31
(CM3) CTR FUEL PUMPS	31
(CM3) ICE PROTECTION	31
(CM2) SIGNS	31
(CM3) CABIN PRESS & TEMPS	31
(ALL) Altimeters	31
After take-off check list	31

Take off card	32
Climb	33
(CM3) External lts	33
(CM1) Climb	33
(CM1-2) AFCS	33
(CM3) Fuel panel	33
(CM1-2) Radar (not simulated)	33
(CM3) Cruise data	33
(CM3) Ice protection	33
Cruise	34
(CM2) N1 computer	34
(CM3) Cruise power	34
(CM3) Fuel system	34
(CM3) Engines	34
Descent preparation	35
(ALL) Fuel quantity	35
(CM1) Master warning	35
(CM1-2) Weather & landing information	35
(ALL) Landing data & V-bugs	35
(CM1) Approach briefing	35
(CM3) Cabin press	35
(CM1-2) Descent clearance	36
(CM3) Descent checklist	36
LANDING CARD	36
Descent/Approach	37
(CM1) Speedbrakes operation	37
(ALL) NAV/COM & Flight instruments	37
(CM1-2) Markers	37
(CM3) EXT LTS	37
(CM3) APU & APU GEN (as required)	37
(CM2) N1 LIM computer	37
(CM3) Signs	37
Approach	38
(ALL) Altimeters	38
(CM1-2) radio altimeters	38
(CM1-2) NAV/COM FREQ	38
Performance envelope	38
In cruise with the autopilot in CMD mode	38
Approach performance envelope	38
LOC beam capture	38
G/S beam capture	38
(CM3) Cabin Press	39

(CM3) Fuel system	39
(CM3) Approach checklist	39
Visual approach	40
Introduction	40
Objective	40
Method for visual approach	40
Visual circuit	40
Initial/intermediate approach	40
Final approach	40
Non precision approach	42
Introduction	42
Applicability	42
Approach guidance	42
Approach speed technique	42
Initial approach	42
(CM1-2) Reference navaids	42
(CM1-2) MDA (MDH)	42
(CM1-2) CRS target	42
(CM3) Approach checklist	42
Intermediate approach	42
Final approach	43
At FAF	43
During final approach	43
(CM3) Final Checklist	43
(CM1-2) Flight parameters	43
(CM2) At MDA (MDH) + 100 ft	43
Reaching MDA (MDH)	44
When visual references are acquired and confirmed by both PF/PNF	44
If no visual reference are acquired	44
Final	45
SLATS/FLAPS (Krüger) Extension/SPEEDBRAKE operation	45
(ALL) Landing gear	46
(CM2) Ground spoilers	46
(CM3) Anti skid	46
Brakes	46
(CM1) Autobrake	46
(CM3) Wing de ice	46
(CM3) EXT LTS	46
(CM3) Signs	46
(CM1-2) Slat/Flaps & Kruger	46
(CM3) Ignition	46
(CM1) Aircraft speeds	47

(CM1-2) GPWS	47
(CM1) Cabin report	47
(CM3) Final checklist	47
(CM1-2) Flight parameters	47
Go around	48
Landing gear	48
(CM2) Parameter monitoring	48
Landing roll	49
Landing roll	50
(ALL) Marker passage	50
Final progress	50
(CM1) Flare	50
(CM1) Throttles	50
(CM3) Ground spoilers	50
(CM1) Reverse	50
(CM1) Directional control	50
(CM1) Brakes	50
(CM1) Reverse	50
After landing	51
(CM1-2) EXT LTS	51
(CM3) Transponder	51
(CM3) Ignition	51
(CM3) Ice protection	51
(CM1) Ground spoilers	51
(CM2) PITCH TRIM & FLAPS/SLATS	51
(CM3) APU	51
(CM3) Brake fans	51
(CM3) Probe heat (pitot)	51
(CM3) Outflow valves	51
(CM3) After landing checklist	51
Parking	53
(CM1) Parking brake	53
(CM1) Ground contact	53
(CM3) APU bleed	53
(CM1) Engines	53
(CM1-3) Parking brake	53
(CM2) Ext LTS & BEACON	53
(CM2) Seat belts	53
(CM2) Window heat	53
(CM3) Fuel panel	53
(CM3) Brake temp	53
(CM2) Parking checklist	53

Leaving the aircraft	55
Take-off, climb and cruise	56
Cruise	57
During climb	57
Lateral modes	57
VOR/LOC mode	57
Capture and tracking of localizer	57
Descent / holding	57
Approach and landing	58

SYMBOLS AND ABBREVIATIONS USED

AFCS: Auto flight control system
ATS: Autothrottle system
CM1: Pilot in the left hand seat
CM2: Pilot in the right hand seat
CM3: Flight engineer
DH: decision height
EXT: external
HF: High frequency
Ind: indicator
lt: light
m.i.: mode indicator
pb: push button
sel: select(or)
SFPI: Slats and flaps position indicator
STBY: Standby
sw: switch
VHF: Very High Frequency

OPERATION SPEEDS

V_S Minimum stalling speed for a specific configuration. It is a function of the aircraft weight and altitude.

V_{MCG} Minimum ground speed from which a sudden failure of the critical engine can be controlled by use of primary flying controls only (the other engine remaining at take-off power)

V_1 Speed at which the pilot can make a decision, following failure of critical engine:

- either to continue take-off within limits of available take-off length
- or to stop the aircraft within limits of available runway length

V_R Speed at which rotation is initiated to reach V_2 at an altitude of 35 feet

V_2 Take-off safety speed reached before the altitude at 35 feet with one engine failed

V_{MCA} Minimum flight speed at which aircraft can be controlled with 5° Max bank, in case of failure of the critical engine, the other engine remaining at take-off power (take-off flaps setting, gear retracted)

V_3 Equal to 1.2 V_S slats extend/flaps 0°. It is the minimum speed at which the flaps may be raised to 0° during the level acceleration at safety height after an engine failure after V_1

V_4 Equal to 1.25 V_S slats 0°/flaps 0°. It is the minimum speed at which the slats may be retracted to 0° in the same situation on one engine

V_{FTO} Final take-off speed to be reached on one engine at the end of the level acceleration and allowing the best climb. On A300B4 it is equal to 1.45 V_S clean configuration

V_{MAN} Minimum recommended maneuvering speed.

V_{FE} Never exceed placard speed for each slats and/or flaps configuration

V_{REF} Reference speed used for a normal final approach. It is equal to 1.3 V_S slats 25°/flaps 25° configuration

V_{APP} Approach speed based on V_{REF} and taking into account configuration correction

Final target speed Approach speed based on VAPP taking into account WIND CORRECTION

TAKE OFF SPEED SCHEDULE

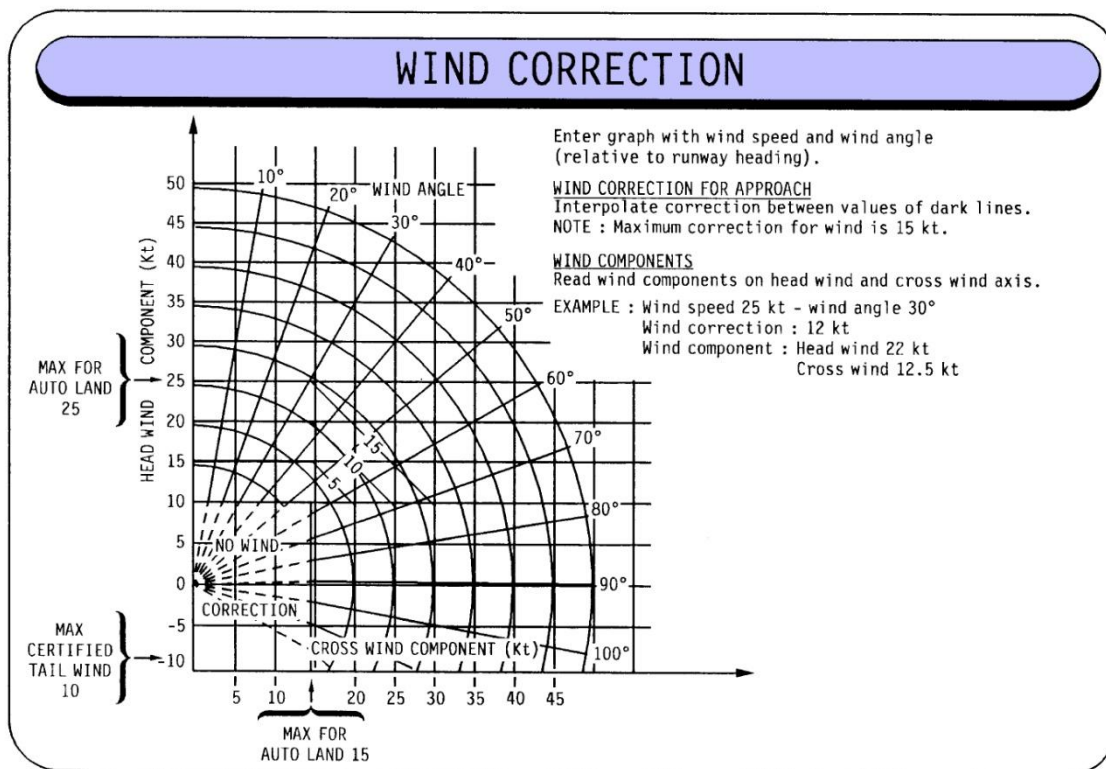
TAKE OFF SPEED SCHEDULE					
CONFIG.		2 ENGINES		1 ENGINE	
		Mini Manoeuver (30°)	Mini RETRACT	Manoeuver (15°)	RETRACT
TAKE OFF	Ext/8 or 15°	$V_2 + 10$	V_3	V_2	V_3
	Ext/0°	$V_2 + 10$	V_4	V_2	V_4
Ext/0°		$V_3 + 10$	V_4	V_3	V_4
0°/0°		$V_4 + 10$		V_4 Manoeuvres to 30° permitted at V_{FTO}	

NOTE: For GO-AROUND, read V_{APP} instead of V_R

APPROACH SPEED SCHEDULE

APPROACH SPEED SCHEDULE (Manoeuvring & extension speed to next conf.)			
LANDING CONFIG.		Slats 16°/Flaps 15°	Slats 25°/Flaps 25°
C O N F I G	0° / 0°	V_{FTO}	V_{FTO}
	Ext / 0°	V_4	V_4
	Ext / 8°	$V_3 + 20$	$V_3 + 20$
	Ext / 15°	$V_{APP} = V_{REF} + 5kt$	$V_3 + 10$
	Ext / 25°		$V_{APP} = V_{REF}$

WIND CORRECTION TABLE



FINAL TARGET SPEED DETERMINATION

WGT	232	243	254	265	276	287	298	309	320	324	328	333	337	342	347	350	357	364
V _{REF} 25/25	121	124	128	130	133	135	138	140	143	144	145	146	147	148	149	149	151	152

+	
CONFIGURATION CORRECTION	
LANDING CONF.	FAILURE
+ 5 kt IF LDG IN 16/15	+ ABNORMAL/EMERGENCY PROCEDURE

IF CONFIG. CORR. > 20 kt	IF CONFIG. CORR. ≤ 20 kt
NO WIND CORRECTION	REFER TO WIND CORRECTION GRAPH WIND CORRECTION MAX = 15 kt IF AUTHOTHROTTLE IS ENGAGED AND IF WIND CORR. < 5 kt, TAKE WIND CORR. = 5kt (CONFIG. CORR. + WIND CORR.) LIMITED TO 20 kt

↓
FINAL TARGET SPEED = VREF + CONFIG. CORRECTION + WIND CORR.

EXAMPLE

Landing weight : 265 000 lbs
 Landing configuration : 16/15
 Failure : Spoiler fault (with one or two surfaces extended)
 Wind speed : 20 kt
 Wind angle : 20°

V_{REF} determined from landing weight : $V_{REF} = 130$ kt
 CONFIG. CORR. Due to the landing configuration : + 5 kt*
 CONFIG. CORR. Due to the failure (spoiler fault): + 10 kt
 CONFIG. CORR. = 5 + 10 = 15 kt (< 20)

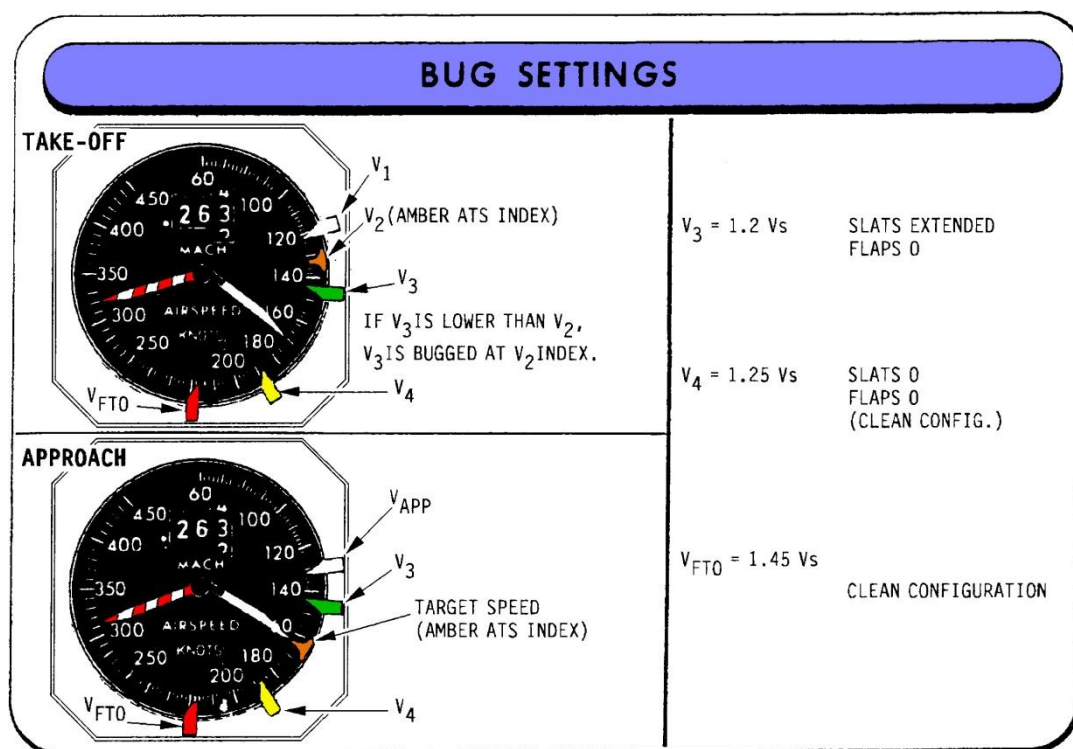
As CONFIG. CORRECTION is less than 20 kt, a wind correction should be applied:
 WIND CORRECTION : 9 kt (< 15)

CONFIG. CORR. + WIND CORRECTION = 15 + 9 = 24 kt > 20 kt, the MAXIMUM TOTAL correction of 20 kt must be applied.

* NOT SIMULATED

FINAL TARGET SPEED = 130 + 20 = 150 kt

SPEEDBUG SETTINGS



COCKPIT SCANS

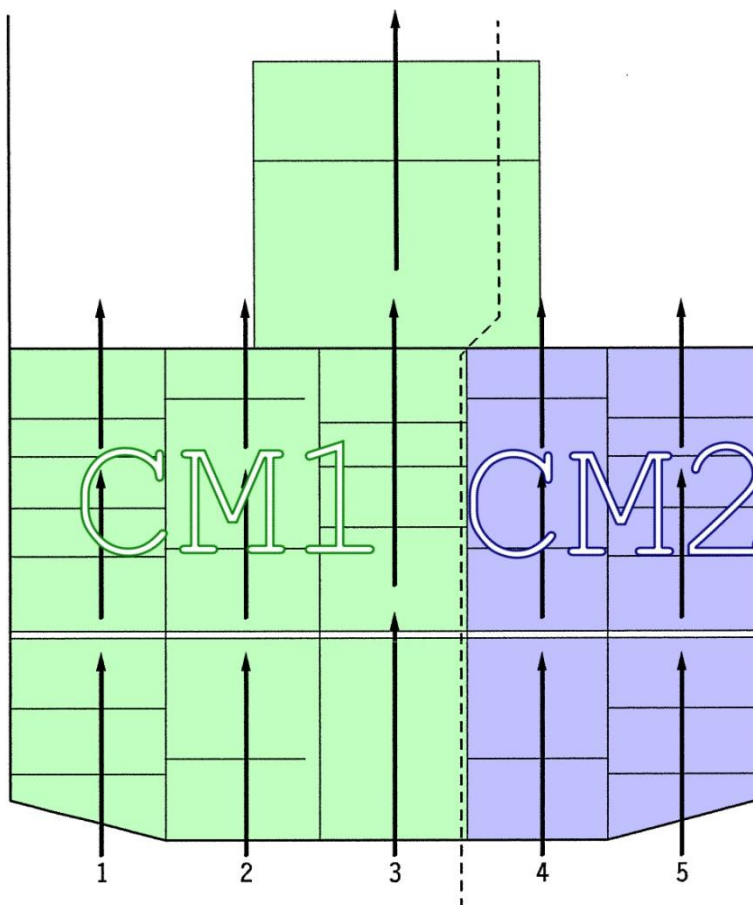


Figure 1: Overhead scan

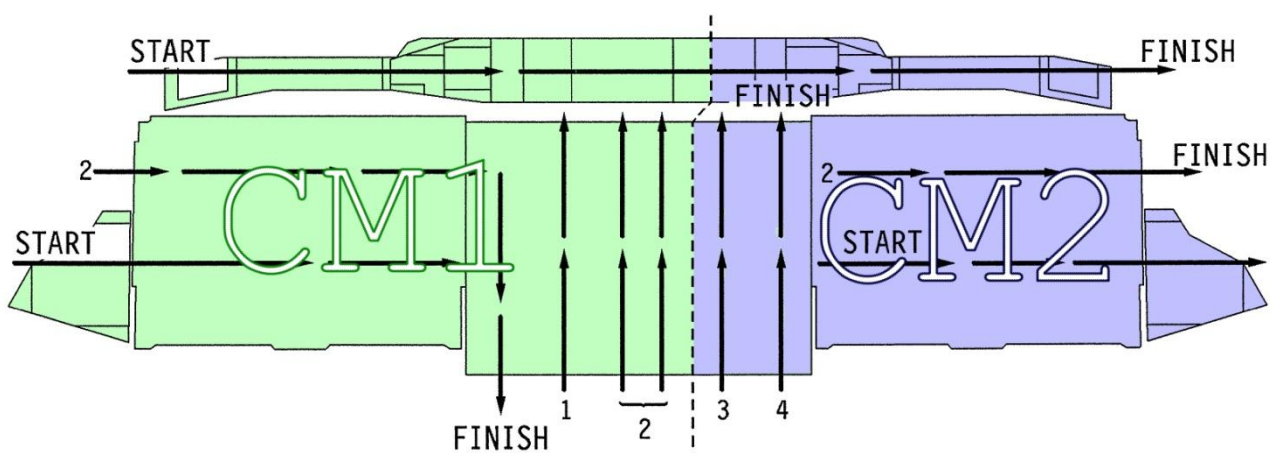


Figure 2: Glareshield scan

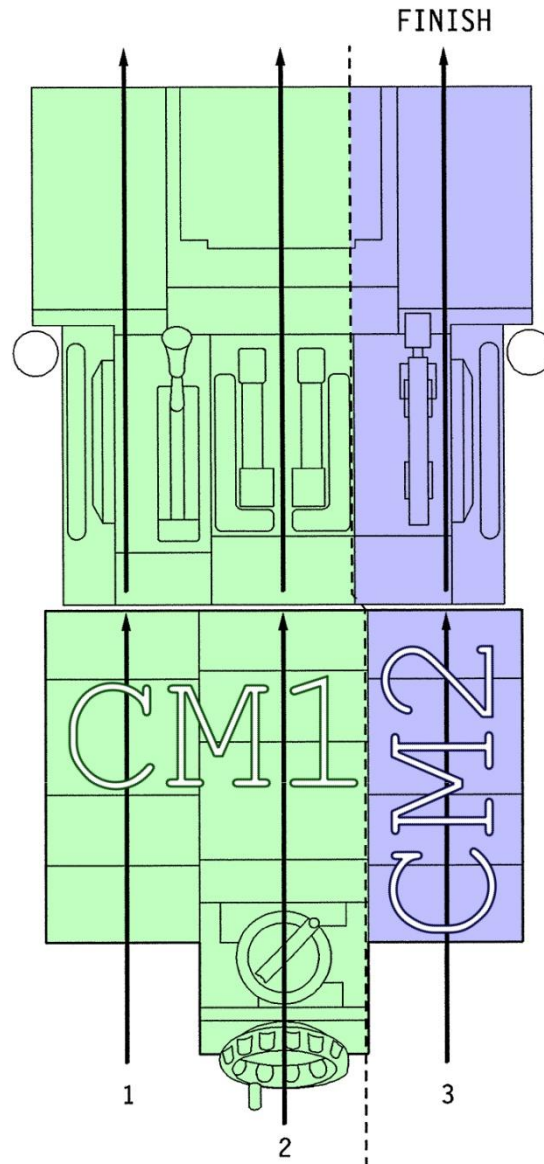


Figure 3: Pedestal scan

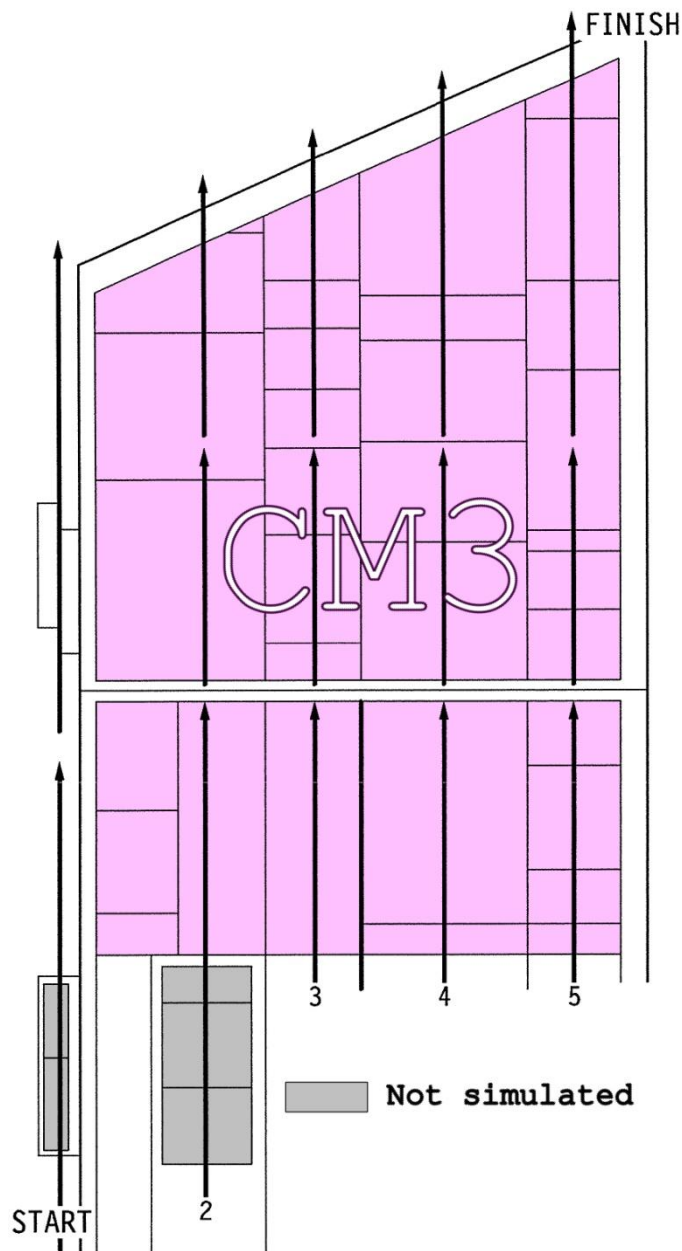


Figure 4: F/E panel scan

CM1 AND CM2 COCKPIT PREPARATION

CM1: OVERHEAD PANEL SCAN

- Lefthand wiper rotary sel OFF
- ANTI SKID select NORM, no "R" light
- YELLOW ACCU PRESS indicator, check pressure is 3000 psi
- EMRG AUDIO CANCEL sw guarded
- COMPASS 1 SLAVED and synchro index centered
- EVAC SIGNAL select ARM and guarded
- PITCH TRIM and YAW DAMPER levers OFF
- LO SPD AIL NORM ad AUTO guarded
- Both RUDDER TRAVEL and PITCH FEEL sw ON
- EXT light as required
- SERVO CONTROLS levers ON

-
- ENG START panel CRANK/START ABORT
 - AGENT 1 and 2 m.i. in line
 - Both FIRE HANDLES lockwired and guarded

CM2: OVERHEAD PANEL SCAN

- SIGNS panel: NO SMOKING ON, SEAT BELTS OFF, EMRG EXIT light ARM
- Both NACELLE ANTI-ICE sw CLOSE
- WINDOW HEAT OFF and 4 FAULT lights on
- RH WIPER sel OFF
- HF's as required
- RADIO MASTER SUPPLY sw SYS 1, ESS SYS, SYS 2
- COMPASS 2 SLAVED and synchro index centered

WING DE-ICE (IF ICING CONDITIONS ARE EXPECTED)

- Set WING DE-ICE VALVES sel to TEST and check:
 - APU N1 increases to 97%
 - Both VALVE DISAGREE lights illuminate (about 1 sec.) then go off
- Release WING DE-ICE VALVES sel and check:
 - APU N1 decreases
 - Both VALVE DISAGREE lights illuminate (about 1 sec.) then go off

RADAR AND ATC TRANSPONDER

- Check STBY position is selected
- Test if desired

ADF CONTROLS PANEL

- Set and check required ADF frequency
- Test if desired

VHF AND HF COMMUNICATIONS

- Check VHF transmission and reception
- Check HF transmission and reception (if required for flight)

Note: Do not transmit on HF during refueling

INS

- Check ramp coordinates and alignment status

CLOCK

- Check clock is electrically supplied and time

STAND-BY HSI AND RMI COMPASSES

- Cross check compass information

VSI

- Check no flag and pointer shows zero

ASI

- Check no flag
- Check speed and VMO pointers in normal position
 - When aircraft is on ground, white needle shows 60 kt. VMO position indicates the appropriate value (360 or 345kt)
- Check Mach counter approximately .17

ADI

- Check no flags

RADAR ALTIMETER

- Set DH below zero

ALTIMETER

- Check no flags
- Set appropriate pressure (QNH or QFE) on the pressure counter, check correct value and cross check the indications of the altitude counter with the needle

MARKER BEACON

- Test if required

STBY HORIZON

- Check no X flag

STBY ALTIMETER

- Set desired pressure
- Check correct value on counter and needle and cross check with normal altimeters

STBY ASI

- Check speed needle on the white dot and VMO pointer at the appropriate value

FD BARS SWITCH

- Set FD bars switch ON

AFCS

- Depress FD1 pb and check pitch basic modes engages
- Depress FD2 pb and check FD2 pb illuminates
- Disengage FD

FINAL COCKPIT PREPARATION

All steps must be performed prior to each flight, with all CM at their respective stations. It completes the steps not yet performed during cockpit preparation.

(CM 1-3) FUEL QUANTITY

- Check required fuel quantity on board

(CM1-2) COM/NAV FREQUENCIES

- Select desired NDB frequencies on ADF control panels, check identification on RMI and switch BFO to "OFF"
- Select ILS or VOR frequencies on NAV panels, check identification and indication if possible
- Select desired frequencies on VHF/COM control panels

(CM2) FIELD INFORMATION

- Check field information is obtained

(CM2) WINDOW HEAT PANEL

- Set FRONT LH and RH PWR sel to LO and SIDE LH and RH PWR sw to ON

(CM2) SIGNS

- Set FASTEN SEAT BELT sw to AUTO
- Set NO SMOKING SIGNS sw to ON

(CM3) CABIN PRESSURE

- Set intended flight level on both cabin pressure regulators according to flight plan

(CM3) FLIGHT RECORDER

- Set FLT RCDR sw to ON
- Check no warning light

(CM2) PREPARATION CHECK LIST

- To be read by CM2 and responded by CM1 and CM3 accordingly
- To be performed after FINAL COCKPIT PREPARATION. Completion assures that all vital steps of the foregoing procedures have been completed

CM2 PREPARATION		
3	Flight recorder	ON
1-3	Gear pins and covers	REMOVED
3	C/B's	CKD
1	Anti skid	NORM
1-2	Compasses	Slaved & X-CKD
1	Signs	SET
1	Instrument switching	(As REQD)... ..
1	Clocks	Hrs & MIN
1	Radar & transponder	STBY
1-3	Fuel quantity	_____
3	Fuel used	RESET
3	Fire detection	CKD
3	Cabin pressure	SET
2	Preparation checklist	COMPLETED

BEFORE PUSHBACK OR START**(CM1) INS SYSTEM**

- Select NAV mode before moving aircraft

(ALL) TOTAL WEIGHT/MMO

- Push hidden knob on weight gauge to set current gross weight, or set gross weight manually based on load sheet
- Push ZFW knob to show total weight and check indicated Total WT with load sheet
- Set MMO SW to appropriate MMO according to TO weight

- 336 000lbs or below: MMO = 0.86

- More than 336 000 lbs: MMO = 0.82

Note: This switch must remain at the selected position during all the flight

(ALL) TAKE-OFF DATA & V-BUGS

- According to latest information received, prepare take-off card and cross check values
- Set V-bugs on ASI (drag bugs or click hidden click zone)
- Cross check V-bugs index settings on ASI takeoff data

(CM2) N1 LIM COMPUTER

- Select T/O mode (TO or FLX TO)
- Set FLEX TEMP

(ALL) ALTIMETER

- Set baro knob of each altimeter to latest barometric reference in use

(CM1-2) GROUND CREW & PUSHBACK OR/AND START-UP CLEARANCE

At this stage the before start preparation is stopped to allow:

- CM1 to obtain: ground crew clearance
- CM2 to obtain: ATC pushback and/or start-up clearance

Either 1 or both engine(s) may be started before, during or after pushback.

(CM2) BEACON

- Set BEACON to ON

(CM1) PARKING BRAKE

- As required

Start before or after pushback

- Check PARKING BRAKE handle is pulled, PARKING BRAKE LT on MWP is on and BRAKE pressure indicator is at least 1500 PSI

Start during pushback

- Release the PARKING BRAKE handle and check the PARKING BRAKE LT on MWP is off and brake pressure indicator shows zero

Pushback speed should be kept below 5kt to avoid the risk of aircraft pivoting in the event of abrupt brake application.

(ALL) WINDOWS

- Depress DOOR TEST pushbutton and check all doors amber light stay off and DOOR light on MWP ON

(CM3) FUEL SYSTEM

- Set TANK 1A and 2A PUMPS sw to ON

-
- Set TANK 1 and 2 PUMPS sw to AUTO
 - Set CTR TANK PUMPS sw to AUTO (if fuel available)
 - Check:
 - Corresponding mode indicator for correct indication
 - PUMP PRESS LO lt OFF

(CM3) AIR BLEED

- Select both PACK VALVES set to CLOSE RESET. This will prevent air conditioning contamination after start
- Check air bleed system set for engine start

BEFORE PUSHBACK CHECKLIST

Read by CM2 and responded by CM1 and CM3 accordingly.

This check list may be read down to the line at any convenient time. Items beyond the line should be read when clear for start-up.

CM2 BEFORE PUSHBACK OR START		
1	NAV systems	NAV
ALL	Total weight MMO	CKD/SET
ALL	Take off data and V-bugs	SET
ALL	Altimeters	-&-CKD
ALL	Windows/doors	LOCKED/TEST
1	Beacon	ON
1	Parking brake	(AS REQD) -
3	Fuel system	SET
3	Airbleed system	CKD
2	Before start checklist	COMPLETED

ENGINE START

The following procedure applies upon completion of the BEFORE PUSHBACK OR START CHECKLIST.

ENG N° 2 is usually started first.

(CM2) Set ENG START sw to ARM position
START pushbuttons remain illuminated during closure of PACK VALVES.

(CM2) Set IGNITION sel to START A (odd days) or START B (even days).

(CM1) START ENGINE 2

(CM2) Depress ENG 2 pushbutton
Check ENG 2 start pushbutton holds in
Check START VALVE "OPEN" illuminates
Announce "VALVE OPEN"

(CM3) Check air pressure increases as APU N1 increases

(CM1) Announce "N2" when N2 increases

(CM3) Check GREEN/YELLOW (BLUE) HYDRAULIC SYS PRESS increases

{CM1) Set FUEL LEVER to ON between 10% and 15% N2
10% N2 constitutes a minimum N2

- Announce "FUEL ON"
- Monitor fuel flow response (slow fuel flow response is not abnormal, delayed fuel flow response is indicative of main fuel pump deterioration)
- Check FF below 700lbs/h

(CM1) Announce "FUEL FLOW"

(CM2) Start clock to time from FUEL ON to light up (max 25 seconds)

(CM1) Announce "EGT" when EGT increases

(CM2) Stop and reset clock

(CM3) Monitor OIL PRESS increase

(CM1) Check ENG 2 OIL PRESS LO on MWP extinguishes

(CM1) Announce "N1" to confirm N1 rotation

(CM1) At 45% of N2 announce "N2 45%"

(CM3) Check N2 start pushbutton popped

(CM3) Check START VALVE OPEN light extinguished
Note: The start valve should be closed and OPEN light extinguished when engine has reached ground idle.

(CM3) Announce "VALVE CLOSED"

(CM3) Announce EGT PEAK°C

Check N1 - N2 - EGT and FF stabilized at nominal idle values (at ISA, sea level N1 about 24%, N2 about 63%, EGT about 430°C, FF about 1350lbs/h)

(CM3) Announce "ALL PARAMETERS CORRECT"

(CM1) "START ENGINE 1"

(ALL) Repeat start sequence as above

CAUTIONS

1. Monitor N2, EGT and FF indicators closely during the start for any abnormal indications. Sluggish N2 acceleration is an indication of either an impending hot start or a hung start.
2. The start attempt should be discontinued in the following cases:
 - a. Sluggish N2 acceleration accompanied by rapidly increasing EGT or/and tail pipe torching reported by ground crew
 - b. EGT does not rise within 25 seconds after FUEL ON
 - c. An indication of N1 is not obtained within 30 seconds of N2 idle operation
 - d. If fuel or ignition is inadvertently interrupted

After placing the FUEL lever to OFF, maintain starter engagement and continue motoring the engine for 30 seconds to ventilate the combustion chamber

3. If indicated FF exceeds 700lb/h before light off, a hot start may result. Be prepared to abort the start if a rapid EGT rise occurs
4. If starter engagement is interrupted, the starter may be reengaged below 20% N2 (30% maximum - 0% recommended)
5. As required - short turn-around (high residual EGT) or tail wind (heat soak back) - set FUEL lever to ON at Maximum Motoring Speed

AFTER START**(CM1) ENGINE START PANEL**

- Set ENG START sw to START ABORT (otherwise A/C will be off)
- Select IGNITION rotary sel to CRANK

(CM2) ICE PROTECTION

Note 1: Test of the NACELLE ANTI ICE VALVES must be performed prior to each originating flight

- Set NACELLE ANTI ICE VALVES sw to OPEN and check VALVE DISAGREE lt is on during transit
- Set NACELLE ANTI ICE VALVES sw to CLOSE if icing conditions are not expected or existing
- Set wing de ice as necessary depending on expected icing conditions

Note 2: Wing de ice valves stay closed as long as the aircraft is on ground

(CM1) TRIM SETTINGS

- Check rudder and aileron trim at zero
- Set pitch trim as stated on T/O data card (approx +2.8)

(CM3) ELEC POWER & LOAD SHED

- Check all ELEC PWR monitoring lights extinguished
- Check transf m.i. cross line

(CM3) HYDRAULIC PANEL

- Check:
 - 3 tank levels normal
 - All hydr PWR monitoring lights extinguished
 - 4 ENG PUMP m.l. in line
 - BLUE, GREEN and YELLOW hydraulic pressure 3000 psi

(CM3) AIR BLEED PANEL

- Set APU BLEED sel to CLOSE RESET
- Set both PACK VALVES sw to AUTO
 - All AIR BLEED monitoring lights off
 - Both BLEED PRESS Ind read about 30 PSI
 - Both PACK FLOW Ind show normal flow
 - APU N1 has increased

(CM3) APU

- Set MASTER SWITCH to OFF and check:
 - APU spooldown after approximately 90 seconds
- Note: APU shut down may be delayed until after take-off if APU bleed supply is required.

(CM1) YAW DAMPERS & PITCH TRIMS

- Set both PITCH TRIM and YAW DAMPER levers to ON
 - Check related warning lights to off

(CM2) FASTEN S/BELTS

- Set FASTEN S/BELTS sw to ON

(CM2) MASTER WARNING

- Depress RECALL pushbutton and check no lts on except PROBES and PARKING BRK ON as applicable

(ALL) FLAPS AND SLATS

- Set and check FLAPS/SLATS and KRUGER positions for T/O

(CM1) GROUND CREW CONTACT

Request:

- Check removal
- Nose wheel steering by-pass pin removal
- Hand signal display
- Interphone disconnection

(ALL) AFTER START CHECK LIST

The AFTER START CHECK LIST has to be read by CM2 and responded by CM1, CM2 and CM3 accordingly.

Completion ensures that the A/C is prepared for TAXI.

CM2	AFTER START	
1	Ignition/start	CRANK/START ABORT
2	Ice protection	(AS REQD) _____
1	Trims	0°/0°/____
3	Electrics	CKS
3	Hydraulics	CKD
3	APU	(AS REQD) _____
3	Air bleed	SET
1	Yaw dampers & Pitch trims	ON
ALL	Flaps and slats (Krüger)	__/_/_/KRÜGER
1	Master warning	RECALL
1	Ground crew	CALL
2	After start checklist	COMPLETED

TAXI

(CM2) TAXI CLEARANCE

- CM2 receives taxi clearance

(CM1) GRND SPOILERS

- Arm (*make sure throttle is not set to idle or FSX will raise the spoilers*)

(CM1) PARKING BRAKE

- Verify the area is cleared for TAXI
- Release the PARKING BRAKE handle (if applicable)
- Check PARKING BRK ON lt off on MWP and brake pressure zero

(CM1) EXT LTS

- Set LAND lt to OFF, and other EXT as required

(CM1-3) BRAKES

- Set BRAKE FANS sw ON as required
- Check brake operation and check brake pressure zero during brake action
- If residual pressure remains, depress several times the brake pedals until release of residual pressure

CAUTION

If the brakes fail during ground operations, immediately select the antiskid switch OFF and modulate the brake. In an extreme emergency and only if pedals are ineffective with the antiskid switched off, the aircraft may be stopped with the parking brake (full pressure application will occur).

(CM2-3) FLIGHT CONTROLS

- The flight controls check is performed at any convenient stage during taxi before arming the autobrake
- Check DROOP value of ALL SPEED AILERONS on FCPI if flaps are extended (*in FSX check with outside spot view*)
- Depress LSA pushbuttons and check blue lt ON
- Check full travel and feel of ELEVATOR, AILERONS and RUDDER, cross check with FCPI
- Confirm all FLIGHT CONTROL position indications neutral.
NOTE: Hydraulic system PRESS LO may occur if test performed on more than one axis at a time.

(CM3) CROSS CHECK WITH FCPI AND ANNOUNCE:

- "ELEVATOR UP/DOWN - 0"
- "AILERONS AND SPOILERS LEFT/RIGHT - 0"
- "RUDDER LEFT/RIGHT - 0"

(ALL) TAKE-OFF DATA & V-BUGS

- Recheck take off conditions

If take off conditions have become more limiting, reset V-bugs, take-off configuration and flex T.O. temperature if applicable, then cross check V-bug settings.

(CM2-3) N1 LIM COMPUTER

- Check TAT against tower temp. If difference is greater than 2° (after tower temps has been confirmed), refer to power management curves and do not use N1 computer or ATS for take-off.

- Read T/O N1 on computer, add 0.6% to compt. reading, if no eng air bleed will be extracted, and enter corrected N1 value on T/O data card.
- Push FLX T/O, proceed as above and confirm FLX TO TEMP setting.
- Check FLX T/O N1 greater than 100%

(CM1-2) NAV/COM & AFCS

- When ATC clearance received:
 - Select NAV/COM frequencies on control panels according to clearance. Select altitude assigned
 - Set AFCS as desired: FD1 or FD2, ALT ACQ and HDG

(CM1-2) FLIGHT INSTRUMENTS

- Scan instrument panels, observe no abnormal flag on instruments, no abnormal annunciators and check compass movement on turning.

(CM3) CABIN PRESS & TEMP

- Confirm CABIN PRESSURE setting and adjust CABIN TEMP as required

(CM3) T/O CONFIG TEST

- Depress T/O CONFIG TEST pushbutton and check no warnings. If intermittent horn sounds and CONFIG lt is on, check:
 - Pitch TRIM setting (red light on PCPI)
 - SLATS or FLAPS position
 - SPEED BRAKES position

(ALL) TAKE OFF BRIEFING

- Standard calls
- For any failure before V1, I/you will call "STOP" or "GO" and I/you will take any stop action
- Above V1, we will continue and no action will be taken except on my/your command
- Single engine procedure is
- Acceleration altitude is
- Departure clearance is

(CM3) TAXI CHECKLIST

The TAXI Challenge/Response checklist has to be read by CM3 and responded by CM1, CM2 and CM3 accordingly.

Some steps have to be performed after the A/C has left congested maneuvering areas and checklist has to be read at the end of the taxi.

CM3	TAXI	
3	Spoilers	ARMED
2-3	Flight controls	CKD
1-2	Flight instruments	CKD
1	N1 computer	SET
3	Take off config	TEST
1	Take off briefing	COMPLETED
3	Taxi check list	COMPLETED

BEFORE TAKE-OFF**(CM3) BRAKE TEMP**

- Check brake temperature

Caution**DO NOT TAKE OFF WITH BRAKES HOT LT ON****(CM3) BRAKE FANS**

- Switch off

(CM1-2) TAKE-OFF CLEARANCE

- PNF requests the clearance and inform PF

(CM3) AIR BLEED SYSTEMS

- Select both PACK VALVES switches, as required.
Depending on the prevailing requirements, any one of the following procedures is possible:
 - Air conditioning pack valves AUTO, supplied by engine bleeds,
 - Air conditioning pack valves AUTO, supplied by APU bleed,
 - Air conditioning pack valves CLOSE
- Cross check N1 LIM computer display with T/O data card value
NOTE: When extracting bleed air from the engines to supply Anti Ice or air conditioning system during TO, N1 and weight or flexible temperature decrement must be taken into account

(CM3) CTR FUEL PUMPS

- Set CTR FUEL PUMP sels to OFF and check TANK 1 and TANK 2 pumps m.i. in lines

CAUTION**Take off prohibited with center tank feeding the engines.****(CM2) AUTO BRAKE**

- Depress MAX pb and check white lt on

(CM3) IGNITION

- Set the ignition rotary sel as required

(ALL) COMPASSES

- Cross check compass headings.

(CM1) AUTOTHROTTLE

- Arm ATS lever

(CM2) TRANSPONDER

- Set mode rot sel to A or B
- Set TCAS to TA/RA

(CM2) EXT LTS

- Use nose TO, RUNWAY TURN OFF and LANDING LT to minimize bird strike hazard during T/O and set NAV LT as required
- Set STROBE LT

(CM1) PROBE HEAT

- Set PROBE HEAT sw (3) to ON and check all associated lts off

(CM1) MASTER WARNING

- Depress RECALL pb and check no WARNING
- Depress T/O INHI pb and check lt on

(ALL) BEFORE TAKE-OFF CHECKLIST

- The before TAKE OFF CHECKLIST challenge/response checklist has to be read by CM3 and responded by CM1 and CM3. The steps have to be performed upon entering the active runway for take-off. Items beyond the line should be read when cleared for take-off.

CM3 BEFORE TAKE OFF		
3	Air bleed systems	SET
3	Ignition	(AS REQD)
1	Auto brake	MAX
3	CTR fuel pumps	OFF
1	Master warning	T/I INHIBIT
2	Transponder	SET
3	Before take off checklist	COMPLETED

TAKE OFF

For tail winds between 10 kts and 15 kts, all Normal Procedures apply except that:

- Take-off must be a static take-off without ATS (see below) with the following changes:
 - After "TAKE-OFF" is announced, advance throttles to set 40% N1
 - Release brakes
 - Advance throttles slowly and smoothly until 30 kt
 - After 30 kt, promptly and smoothly advance throttles to obtain Take-off N1

Rolling take-off is at the discretion of the captain.

TAKE OFF WITH ATS

Take off with ATS engaged is the normal procedure.

ROLLING TAKE-OFF:

- (CM1) Announce "TAKE OFF"
- (CM1) Slightly advance throttle above idle position, monitor for symmetrical spool-up and within 2 seconds trigger go levers
- (CM1-2) Start clock
- (CM1-2) Monitor autothrottle operation and adjust throttle setting if necessary so that the difference with computed N1 LIMIT is within 0.5% between 80 kt and 100 kt
- (CM3) Announce "POWER SET"

STATIC TAKE-OFF

- (CM1) Announce "TAKE OFF"
- (CM1) Progressively adjust engine thrust from idle to about 80% N1
- (CM1) Release brakes
- (CM1) Trigger go levers
- NOTE: Intermediate thrust setting will ensure that both engines will accelerate similarly and will minimize any directional control problem
- (CM1-2) Start clock
- (CM1-2) Monitor autothrottle operation and adjust throttle setting if necessary so that the difference with computed N1 LIMIT is within 0.5% between 80 kt and 100 kt
- (CM3) Announce "POWER SET"
- NOTE: The above procedure assures "Flight manual" certified performance.

TAKE OFF WITHOUT ATS

ROLLING TAKE-OFF

- (CM1) Announce "TAKE OFF"
- (CM1-2) Start clock
- (CM1-2) PF advance throttles to initiate take off
- (CM3) Adjust to take off N1 (prior to reaching 80 kt) and announce "POWER SET"

STATIC TAKE OFF

- (CM1) Announce "TAKE OFF"
- (CM1) Advance throttles to 80% N1
- (CM1) Release brakes

- (CM1-2) Start clock
- (CM3) Adjust to take off N1 (prior to reaching 80 kt) and announce "POWER SET"

(CM1) AIRCRAFT CONTROL

- During take-off run, use pedals for directional control
- Keep control column forward of neutral and release progressively to achieve the neutral position by 100 kt
NOTE: In case of vibrations or shimmy of the nose wheels, release forward pressure and apply a slight back pressure on the control column as necessary. Vibrations will probably disappear as the weight on the nose wheel is reduced.

AIRSPED INDICATORS

- (CM2) Announce "ONE HUNDRED KNOTS" when ASI is at 100 kt and cross check reading on STBY ASI
- (CM1) confirm reading on his own ASI at 100 kt

V SPEEDS

- Announce "V1" and "ROTATE" at VR

(CM1) AIRCRAFT HANDLING

- At VR, initiate the rotation with a positive control column input to achieve a continuous rotation rate of about 3°/sec, towards a pitch attitude of 15° (12.5° if one engine failed)
- After liftoff, follow the SRS pitch command bar

LANDING GEAR

- (CM2) Announce "POSITIVE CLIMB"
- (CM1) When rate of climb is positive, order: "GEAR UP"
- (CM2) Set L/G lever to UP and acknowledge: "COMING UP"
- (CM2) Announce: "GEAR UP" when L/G lts are OFF and set the L/G lever to neutral
NOTE: Do not select neutral position when speed is well above 270 kts
- (CM3) Check TO INHI lt OFF

(CM3) GROUND SPOILERS

- Disarm ground spoilers

(CM3) EXT LTS

- Set NOSE TO to OFF

(CM1-2) AIRCRAFT HANDLING

- At 800ft mini AGL or at published acceleration height select ATS speed bug to initial climb speed and reduce pitch attitude to about 10 deg (or follow pitch command bar)
- Order: "CLIMB or CRUISE POWER"

(CM2) N1 LIM COMPUTER

- Depress CL or CR on N1 LIM computer and check:
 - CL or CR green lt on and N1 LIM display accordingly
 - (CM2-3) Check ATS operation if engaged in N1 mode
NOTE: In case of either asymmetrical thrust reduction or thrust reduction below CL, ATS must be disconnected and thrust manually set
- (CM3) Set required power using N1 computer display or, if unserviceable, use engine management charts for manual power settings

SLATS/FLAPS & KRÜGER

- (CM1) At V3 minimum (V3 + 10 kt maneuvering speed) order: "FLAPS ZERO"
- (CM2) Move SLATS/FLAPS handle to FLAPS 0 position, and acknowledge: "FLAPS SELECTED ZERO"
- (CM2) Announce: "FLAPS ZERO" when SFPI shows FLAPS ZERO
- (CM1) Accelerate with a rate of climb of 1000 ft/min
- (CM1) At V4 minimum (V4 + 10 kt maneuvering speed) order: "SLATS RETRACT" and decrease pitch altitude to 7.5 degrees (or follow pitch command bar)
- (CM2) Move SLATS/FLAPS handle to SLATS RETRACT position and acknowledge: "SLATS SELECTED RETRACTED"
- (CM2) Announce "SLATS RETRACT" (and KRUGER blue lt off) when SFPI shows SLATS RETRACT

(CM1) INITIAL CLIMB SPEED

- Accelerate to initial climb speed

(CM3) IGNITION

Set ignition rot sel as required

(CM3) AIRBLEED SYSTEM

- Set One Pack Valve sw to AUTO and check flow indication
- Repeat sequence for second Pack

(CM3) CTR FUEL PUMPS

- Set CTR fuel pumps sel to AUTO and check CTR fuel pumps and CTR tank shut off valves m.i. in line and TANK 1 and 2 pumps m.i. cross line
- Monitor FUEL PRESS for correct values

(CM3) ICE PROTECTION

- Set nacelle Anti-Ice sws as required
- Nacelle ANTI-ICE should be ON when icing conditions exists or are expected to be encountered

(CM2) SIGNS

- Set NO SMOKING sw to OFF or leave at AUTO
- Set SEAT BELTS sw as required

(CM3) CABIN PRESS & TEMPS

- Check cabin rate of climb and temps, adjust as required

(ALL) ALTIMETERS

- At the transition altitude set standard pressure (1013mb) on CM1, CM2 and STBY altimeters, cross check settings

AFTER TAKE-OFF CHECK LIST

The AFTER TAKE-OFF checklist is unilateral and has to be read silently by CM3 down to the line. Altimeters + Signs should be announced to CM1 + CM2.

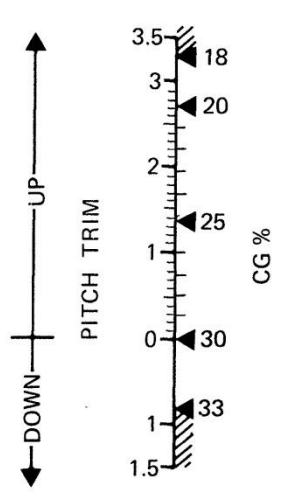
The actions have to be performed by CM1, CM2 and CM3 accordingly during the take-off phase.

Step by step CM3 will verify that all actions have been performed properly. Upon completion he will inform the CM1.

Items beyond the line should be read when transition altitude is reached.

CM3		AFTER TAKE OFF
3(s)	Landing lights	RETRACTED
3(s)	Ignition	(AS REQD) _____
3(s)	Landing gear	UP/NEUTRAL
3(s)	Flaps and slats	RETRACTED
3(s)	Spoilers	DISARMED
3(s)	Fuel management	ESTABLISHED
3(s)	Air bleed systems	SET
3(s)	Cabin press	SET
ALL	Altimeters	STD
1	Signs	(AS REQD) _____
3	After take off checklist	COMPLETED

TAKE OFF CARD

TAKE OFF		A300B4	GE OCT. 80
AIRPORT : _____ DATE : _____ FLT N° : _____			
ATIS CODE : _____			
RWY : _____ WIND _____ °/ _____ kt			
QNH _____ QFE _____ TEMP : _____ / _____ °C			
TRANSIT ALT _____ ft			
WEIGHT: _____ tons		CG: _____ %	
CONFIG FLAPS: _____ °		PITCH TRIM: _____ °	
SAFE PITCH _____ °	V1		 <p>PITCH TRIM scale with CG % markings: 18, 20, 25, 30, 33. Scale ranges from 3.5 (UP) to 1.5 (DOWN).</p>
MAX T.O. : N1 : _____ %	VR		
FLEX T.O. : FLEX _____ ° TEMP _____ °	V2 ▲		
N1 : _____ %	V3		
MAX N1 _____ %	V4		
(GA)	V _{FTO}		
ACCEL ALT : _____ ft	TGA		
	VREF		

CLIMB

(CM3) EXTERNAL LTS

- When reaching FL100 switch RUNWAY TURN OFF lights OFF
- LOGO lights: follow company policy

(CM1) CLIMB

- Maintain climb speed as required

(CM1-2) AFCS

- Select modes on AFCS panel as required

(CM3) FUEL PANEL

- Monitor CTR TANK fuel
NOTE: When CTR TANK fuel is consumed, CTR TANK PUMPS are automatically switched OFF and CTR TANK SHUT OFF VALVES are automatically switched to SHUT
TANK 1 and 2 PUMPS are automatically switched to ON
- After automatic transfer check FUEL PRESS and all m.i. for correct indications. Confirm manually all automatic actions
- NOTE: This step may occur during cruise, depending on the amount of fuel in CTR TANK

(CM1-2) RADAR (NOT SIMULATED)

- Select mode of operation as required
- Adjust radar for proper scanning of climb out sector

(CM3) CRUISE DATA

- Prepare CRUISE DATA for assigned flight level

(CM3) ICE PROTECTION

- Set WING and or NACELLE ANTI ICE as required

CRUISE

(CM2) N1 COMPUTER

- Depress CR on N1 computer and check:
CR green lt on and N1 LIM display accordingly

(CM3) CRUISE POWER

- Adjust throttles to CRUISE N1 corresponding to corrected chart value for desired cruise speed, A/C weight and TAT
It is recommended that ATS SPD mode is used in cruise in order to obtain maximum fuel economy. It is most effective when the mach number to obtain is below 0.8M

(CM3) FUEL SYSTEM

- Check FUEL QTY decrease on inboard fuel tank. No decrease should be noticed on outboard tanks
- When inboard tanks are empty, check pumps m.i. amber and PUMPS PRESS LO arrow illuminated
- Set PUMPS sw of TANK 1 and/or 2 to OFF
- When overflying a waypoint, or every 30 minutes, check that the sum of the fuel on board and the fuel used is consistent with the fuel on board at departure. If the sum is unusually smaller than the fuel on board at departure, suspect a fuel leak.
CAUTION: This check also must be performed each time a fuel imbalance procedure is necessary. Perform the check before applying the fuel imbalance procedure. If fuel leak is confirmed, apply the fuel leak procedure.

(CM3) ENGINES

- Monitor engine OIL QTY with reference to pre-start conditions.

DESCENT PREPARATION

(ALL) FUEL QUANTITY

- Compute remaining fuel quantity and cross check values
NOTE: if advised by company policy consume fuel out of tanks 1A and 2A at the end of cruise for the prevention of fuel tanks contamination it is recommended to reduce V_{MO} by 5 kt.

(CM1) MASTER WARNING

- Depress RECALL pb and check aircraft status

(CM1-2) WEATHER & LANDING INFORMATION

- PNF obtains all required information and informs PF and CM3
- For tail winds at landing above 10 kt:
 - Maximum runway altitude is 5300 ft
 - Decelerated approaches are not permitted
 - Before final descent it is recommended to stabilize speed around $V_{REF} + 5$ kt
 - S/F 25°/25° is recommended for landing

(ALL) LANDING DATA & V-BUGS

- (3) Determine landing weight, speeds, N1 go around and ldg configuration
- (2-3) Fill in DATA CARD and cross check
- (1-2) Set V-Bugs accordingly on ASI

(CM1) APPROACH BRIEFING

Main points to be covered are:

- Fuel available and fuel needed for diversion, holding
- Runway conditions, lighting and dimensions
- Ground spoilers, reverse operation and autobrake selection
- Terminal area topography, transition level and minimum safe altitudes to ensure a proper terrain awareness
NOTE: Some authorities may require operators to add a certain number of feet to the MDA
- Go around:
 - Standard call/task sharing
 - Diversion decision

Both CM1 and CM2 set radio altimeters as defined by company policy

NOTE: Airbus policy: Baro altimeters reference should be used for MDA and CAT I DH. Radio altimeter reference should be used for CAT II and CAT III approaches as defined by approach procedure charts

NOTE: if AP is disengaged, it is recommended to descend at Mach 0.8 or below to avoid alpha trim activation

(CM3) CABIN PRESS

- Rotate BARO SET knob to Sea Level Pressure (QNH) on system n° 1 and 2 cabin pressure regulators
- Set ALT knob to airfield elevation minus 400 ft
- Set RATE knob as required
- Set QNH on CABIN ALTIMETER

An alternate method consists in setting the Airfield Ground Pressure (QFE) with the BARO SET knob, in this case set ALT knob to the zero cabin altitude minus 400 ft.

(CM1-2) DESCENT CLEARANCE

- When clearance obtained PNF select assigned alt on AFCS panel

(CM3) DESCENT CHECKLIST

- The DESCENT Challenge/Response checklist has to be read by CM3 and responded by CM1, CM2 and CM3 accordingly at the beginning of the descent

CM3 DESCENT		
CM1	Master warning	RECALL
CM1-2	V-Bugs	SET
CM1	Approach briefing	COMPLETED
CM3(s)	Cabin press	SET
CM3	Descent check list	COMPLETED

LANDING CARD

LANDING	A300B4	GE
		OCT. 80
DESTINATION :		ALTERNATE :
ATIS CODE : _____ RWY : _____ WIND : _____ / _____ Kt QNH : _____ QFE : _____ TEMP : _____ / _____ °C TRANS LEVEL : _____ ft		
WEIGHT : _____ lbs		
WEIGHT lbs x1000	232	243
V _{REF}	121	124
V _{APP}	CONFIG. CORRECTION : +	
V ₃	140	141
V ₄	171	175
V _{FTO}	198	203
T _{GA}		_____
GA N1		_____ %

DESCENT/APPROACH

(CM1) SPEEDBRAKES OPERATION

- Set SPEED BRAKES as required. Check SPEED BRAKE light on SFPI is illuminated.
NOTE: The use of speedbrakes will change the angle of attack and consequently when in clean configuration, alpha-floor function may be activated close to V_{FTO}

(ALL) NAV/COM & FLIGHT INSTRUMENTS

- All CM set and cross check the related flight instruments

(CM1-2) MARKERS

- Set MRK selector as desired

(CM3) EXT LTS

- Set RUNWAY TURN OFF lights and LAND lights on at FL100 and, additionally, LOGO lights at night

(CM3) APU & APU GEN (AS REQUIRED)

- Start APU before or after landing as required and check APU GEN OFF light extinguishes, but avoid APU start on short final
NOTE: Before starting APU, set BATTERY switches to ON to ensure that batteries act as buffers to reduce electrical transients
Return BATTERY switches to NORM after APU start

(CM2) N1 LIM COMPUTER

- Press GA pushbutton on N1 limit computer and check GA green light illuminated and N1 LIM display accordingly

(CM3) SIGNS

- Set SEAT BELTS switch to ON (if AUTO position not installed)

APPROACH

(ALL) ALTIMETERS

- Set QNH (QFE if required) on all altimeters when approaching the transition level and when cleared for an altitude
- Crosscheck baro settings and altitude readings

(CM1-2) RADIO ALTIMETERS

- Both CM1 and CM2 confirm settings in accordance with company policy
NOTE: Radio altimeter reference should be used for CAT II and CAT III approaches as defined by approach procedure charts

(CM1-2) NAV/COM FREQ

- Set receivers and CRS as required

PERFORMANCE ENVELOPE

In cruise with the autopilot in CMD mode

VOR capture: with an interception angle of 45°, the minimum distance from the station must be 35NM

ALT mode: when the mode is engaged, the maximum vertical speed should be less than 2000 ft/min

HDG SEL mode: the difference between the actual and the selected heading must not exceed 160°

APPROACH PERFORMANCE ENVELOPE

LOC beam capture

The following graph gives the angle of interception of the beam function of speed and distance to the threshold.

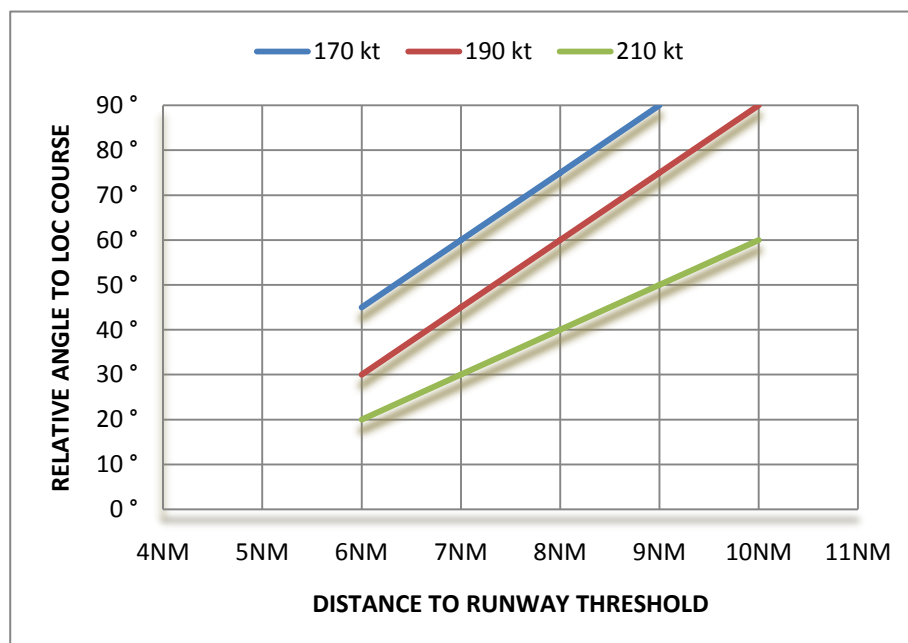


Figure 5: Approach speed vs LOC intercept angle

G/S beam capture

- Before G/S intercept
 - Monitor G/S raw data

-
- Callout "G/S alive"
 - At the outer marker or at a determined DME distance:
 - Cross-check altitude with the published approach profile
 - Call-out excessive G/S deviation, as appropriate
 - If abnormal G/S capture or tracking, as appropriate
 - Confirm satisfactory of the ILS ground transmitter
 - If his or ADI malfunction is suspected (even in the absence of flag), disregard the affected HSI or ADI

(CM3) CABIN PRESS

- Check CABIN PRESS and CABIN ALT stabilized and check differential pressure for normal indication: about 1psi at 1500 ft.

(CM3) FUEL SYSTEM

CAUTION

DO not land with engines supplied by CTR fuel tank
--

(CM3) APPROACH CHECKLIST

The APPROACH Challenge/Response checklist has to be read by CM3 and responded by CM1, CM2 and CM3 accordingly when passing transition level.

CM3		APPROACH
CM2	N1 computer	GA
ALL	Altimeters	-
CM1	Decision height	- ft
CM3	Approach checklist	COMPLETED

VISUAL APPROACH

INTRODUCTION

This procedure provides general guidelines to perform a visual approach. In every case, if the visual approach has been published for the landing runway, it must be applied.

NOTE: Keep in mind the possible risk of optical illusion due to night vision

OBJECTIVE

The objective is to approach using visual reference on a nominal 3 degrees glideslope and to be stabilized by 600 ft AGL (two engines) or 500 ft AGL (one engine).

To be established, all the following conditions must be achieved before or when reaching this stabilization height:

- The aircraft is on the correct lateral and vertical flight path
- The aircraft is in the desired landing configuration
- The power is stabilized and the aircraft is trimmed to maintain V_{APP} on the desired glide path
- No excessive flight parameter deviation

If not established when reaching 600 ft AGL (two engines) or 500 ft AGL (one engine) minimum, a Go Around must be initiated.

Method for visual approach

The autopilot should be disconnected.

NOTE: If the forecasted tail wind at landing is greater than 10 knots, decelerated approach is not allowed, and the speed should be stabilized around $V_{REF} + 5$ knots on final.

VISUAL CIRCUIT

Initial/intermediate approach

The downwind leg might be part of the flight plan in the CDU/INS. This may be a useful indication of the aircraft positioning in the circuit. However visual references must be used.

Therefore, at beginning of downwind leg:

- The use of AUTOTHROTTLE is at pilots discretion
- Apply the flight pattern
Downwind leg extension 45 seconds +/- wind correction
Turn into base leg - bank 30° max

Final approach

- Monitor thrust (if in manual thrust) and approach path. Avoid descent through the correct approach path with idle thrust. (Late recognition of this situation without prompt thrust increase may lead to considerable speed decay and altitude loss)
- Endeavour to have the aircraft "stabilized" by 600 ft AGL (2 engines) 500 ft AGL (one engine), on the correct approach path at FINAL TARGET SPEED (or GS mini) with the appropriate thrust applied. If not established a go around must be initiated
- Avoid any tendency to "duck under" in the latter stages of the approach
- Avoid destabilization of the approach in the last 100 ft to give the best chance of achieving a good touch down at the desired position

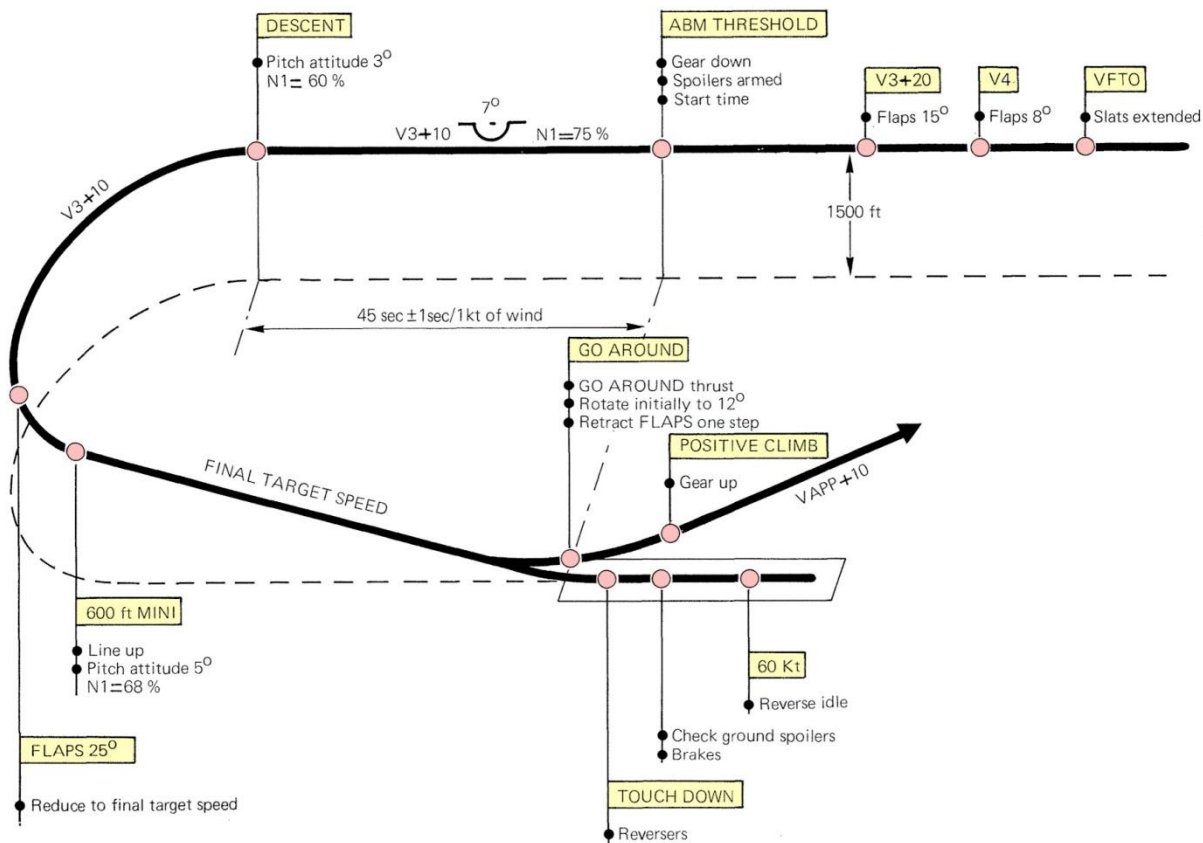


Figure 6: Two-engined VMC approach

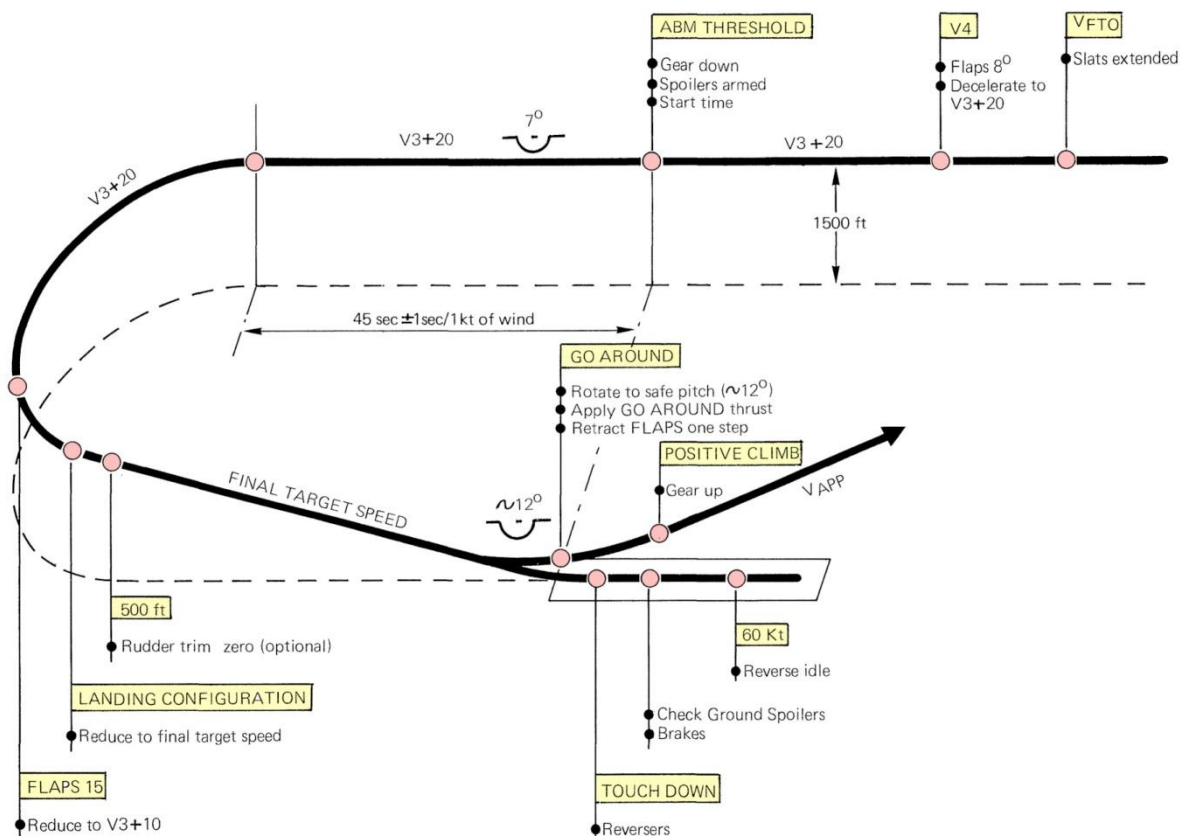


Figure 7: One-engined VMC approach

NON PRECISION APPROACH

INTRODUCTION

This procedure contains recommendations that are specific to Non Precision Approaches.

The standard approach procedure steps have not been repeated. They must be completed before the Final Approach Fix.

The procedure provides general guidelines that may be adapted according to the airline policy and/or the actual flight conditions.

APPLICABILITY

This procedure applies to all non-ILS approaches, e.g. NDB, VOR, VOR-DME, LOC ONLY, LOC-DME, LOC BACK CRS.

APPROACH GUIDANCE

Non precision approaches can be performed using the following AP/FD guidance:

- HDG SEL mode down to the MDA or until LOC interception (lateral guidance)
- V/SPD mode after leaving the FAF down to MDA (vertical guidance)

Whenever compatible with the published approach profile and obstacle clearance, the recommended procedure is to pre-calculate a vertical speed so that the aircraft will fly a constant flight path angle from the FAF to the runway.

APPROACH SPEED TECHNIQUE

The standard speed technique is a stabilized approach using AP engaged in CMD mode and AUTOTHROTTLE engaged in SPD mode. This enables the aircraft to intercept the final descent path in the landing configuration and at V_{APP} , with thrust above idle.

INITIAL APPROACH

(CM1-2) REFERENCE NAVAIDS

- Tune and check the reference navaids. For VOR approach, tune frequency on NAV control panel, select the final approach course on CRS control panel.

(CM1-2) MDA (MDH)

- Set MDA (MDH) using the altimeter amber index.

(CM1-2) CRS TARGET

- Set CRS target. For NDM approach, set final approach course on CRS control panel.

(CM3) APPROACH CHECKLIST

The APPROACH challenge/response checklist has to be read by CM3 and responded by CM1, CM2 and CM3 accordingly when passing transition level.

CM3 APPROACH		
CM2	N1 computer	GA
ALL	Altimeters	-
CM1	Decision height	- ft
CM1-2	Reference navaids	CHECK
CM3	Approach checklist	COMPLETED

INTERMEDIATE APPROACH

The STANDARD APPROACH steps to prepare the aircraft for landing (L/G down, spoilers armed, flap 25, speed V_{APP}) should be performed before reaching the FAF.

The objective is to be stabilized at 500 ft AGL minimum in VMC (1000 ft AGL in IMC) by ensuring that:

- The aircraft is on the correct lateral and vertical flight path
- The power is stabilized and the aircraft is trimmed to maintain V_{APP} on the desired approach path
- No excessive flight parameter deviation

If not stabilized when reaching 500 ft AGL minimum in VMC (1000 ft AGL in IMC), a Go Around must be initiated.

FINAL APPROACH

At FAF

- (CM1) Set the pre-calculated vertical speed required to obtain the desired FPA
- (CM1) Set the go-around altitude when below the go around altitude

DURING FINAL APPROACH

- (CM1) Adjust HDG SEL and V/SPD accordingly using navaid raw data and altitude
- (CM2) Monitor reference navaid raw data
- (CM2) Monitor altitude in relation with the published descent profile and the distance to the runway
- (CM1-2) Check FD and Flight instruments

(CM3) FINAL CHECKLIST

- The FINAL challenge/response checklist has to be read by CM3 and responded by CM1, CM2 and CM3 accordingly. It may be read down to the line after the landing gear has been extended and finished after final flap setting.

CM3		FINAL
CM1	Landing gear	3 GREEN
CM1	Auto brakes	(AS REQD) _____
CM2	Spoilers	ARMED
CM3	Anti skid	CKD
CM3	Signs	SET
CM1	Flaps and slats	____ / ____
CM3	Approach checklist	COMPLETED

(CM1-2) FLIGHT PARAMETERS

- Check the flight parameters. PF announces any FPI change.
- PNF calls out if:
 - Speed becomes lower than $V_{APP}-5kt$ or greater than speed target $+10kt$
 - Pitch attitude becomes lower than -2.5° or greater than 10° nose up
 - Bank angle becomes greater than 7°
 - Descent rate becomes greater than 1000 ft/min
 - LOC deviation becomes greater than 1 dot for LOC approaches
 - Any significant changes in ground speed that might indicate windshear
- If a call-out occurs during the final approach, a go around must be initiated

(CM2) At MDA (MDH) + 100 FT

- Announce "HUNDRED ABOVE"

REACHING MDA (MDH)

When visual references are acquired and confirmed by both PF/PNF

- (CM1) Announce "CONTINUE"
- (CM1) Continue as visual approach with the standard call outs
- (CM1) Disconnect the autopilot

NOTE: Close to the ground, avoid important down corrections. Give priority to attitude and sink rate.

If no visual reference are acquired

At MDA (MDH) and VDP:

- (CM1) Announce "GO AROUND FLAPS"
- (CM2) Retract FLAPS one step and announce the new FLAP position
- (CM1) Initiate manual go around

NOTE: If ground references are not visible when the aircraft is approaching MDA, and immediate go around must be initiated. The go around should be anticipated to avoid MDA undershooting.

However, if the distance to the runway is not properly assessed, a step descent approach may be considered and a level off at MDA may be performed, while searching for visual references. If the pilot has no visual reference at the VDP, he should initiate a go around. Anyway, the go around must have been initiated at the MAP at the latest.

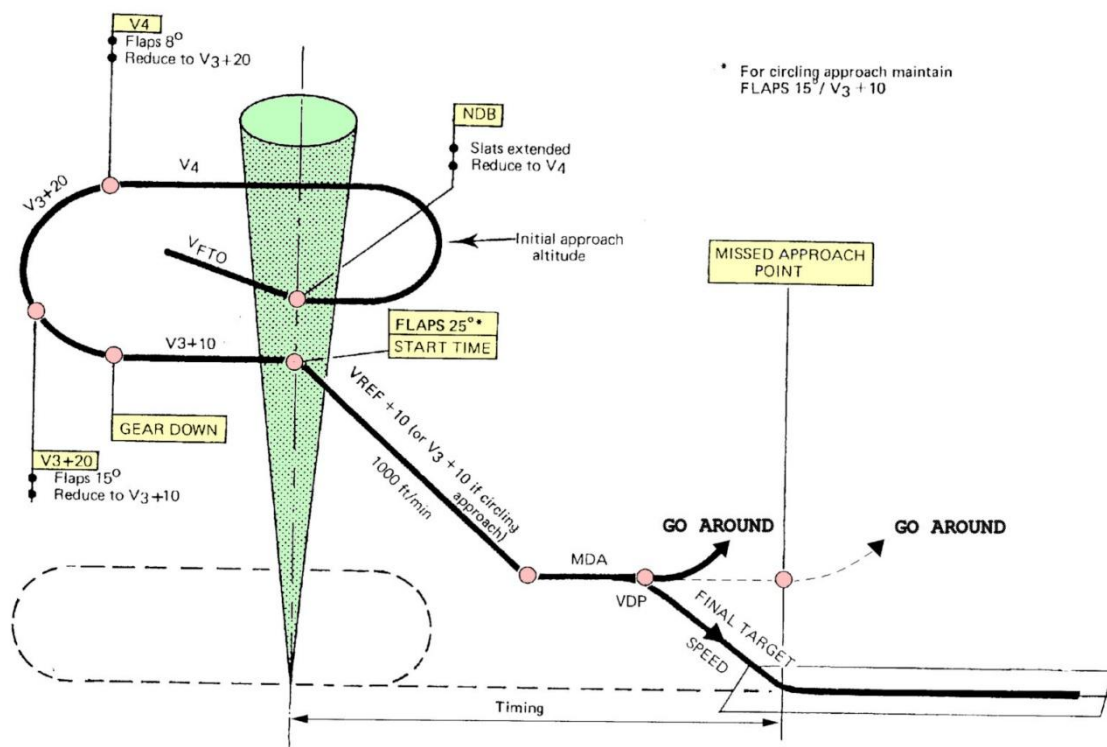


Figure 8: Non-precision approach

FINAL

For tail winds at landing above 10 kt:

- Decelerated approaches are not permitted
- Before final descent it is recommended to stabilize speed around $V_{REF} + 5\text{kt}$
- S/F 25°/25° is recommended for landing

The following procedure assumes an ILS approach with on AP engaged in CMD and autothrottle engaged which is the recommended procedure.

Conducting a stabilized approach is recommended. The objective is to be stabilized at 500 ft AGL minimum in VMC (1000 ft AGL in IMC) after continuous deceleration on the glideslope. To be stabilized, all the following conditions must be achieved before or when reaching this stabilization height:

- The aircraft must be on the correct lateral and vertical flight path
- The aircraft is in the desired landing configuration
- The power is stabilized and the aircraft is trimmed to maintain V_{APP} on the desired glide path
- No excessive flight parameter deviation

The advantages are:

- Lower fuel consumption
- Lower noise levels
- Time saving
- Flexibility and ability to vary speed to suit ATC

If not stabilized when reaching 500 ft AGL minimum in VMC (1000 ft AGL in IMC), a Go Around must be initiated.

SLATS/FLAPS (KRÜGER) EXTENSION/SPEEDBRAKE OPERATION

- (CM2) Select ATS index at V_{FTO}
- (CM1) Check airspeed below V_{FE}
- (CM1) Order: "SLATS EXTEND"
- (CM2) Move SLATS/FLAPS handle to SLATS EXT position, check slats are moving and announce "SLATS SELECTED"
- (CM2) Select ATS index at V_4
- (CM2) Cross check with SFPI and announce "SLATS/KRUGER EXTENDED" when ind shows SLATS 16
- (CM1) Check airspeed below V_{FE}
- (CM1) Order: "FLAPS EIGHT"
- (CM2) Move SLATS/FLAPS handle to FLAPS 8 position, check flaps are moving and announce "FLAPS SELECTED EIGHT"
- (CM2) Select ATS index at $V_3 + 10$
- (CM2) Cross check with SFPI and announce: "FLAPS EIGHT" when ind shows FLAPS 8°
- (CM2) Check speedbrakes handle is at RET and SPEEDBRAKES lt is off on SFPI below 180 kt
- (CM1) Decelerate, check airspeed below V_{FE}
- (CM1) Order: "FLAPS FIFTEEN"
- (CM2) Move SLATS/FLAPS to FLAPS 15 position, check flaps are moving and announce: "FLAPS SELECTED FIFTEEN"
- (CM2) Select ATS index at $V_3 + 10$
- (CM2) Cross check with SFPI and announce: "FLAPS FIFTEEN" when ind shows FLAPS 15°

- NOTE: Do not change speedbrakes position during configuration changes. Do not use speedbrakes with FLAPS 15 or 25 !

(ALL) LANDING GEAR

At the CM1 order "GEAR DOWN", CM2 sets L/G lever to the DOWN position.

- (CM1) Announces "3 GREEN" when sequence is over and 3 green arrows lts on
- (CM3) Checks: Green hydr QTY and L/G lts for normal indication on his panel

(CM2) GROUND SPOILERS

- Arm GRD SPOILERS

(CM3) ANTI SKID

- Check ANTI SKID sw NORM

BRAKES

- Check brake pressure indication is zero on dual indicator
- If brake pressure is not zero, depress several times the brake pedals until release of the residual pressure
- If residual pressure remains preferably select autobrake, or apply a slight brake pressure on touchdown and modulate braking as required

(CM1) AUTOBRAKE

- The use of Autobrake is recommended, select the appropriate pushbutton according to the runway length and conditions and check related light illuminated. In case of failed indication, select the system OFF. The use of MAX is not recommended at landing
- When landing on short or contaminated runway or when operating in low visibility weather conditions use HI mode
- On a normal runway length MED mode is recommended. It is recommended to use max reverse thrust until 80 kt. Then idle reverse and brakes, as necessary, according to the remaining distance.
NOTE: If, on very long runways, the pilot anticipates that braking will not be needed, use of the autobrake is unnecessary.

(CM3) WING DE ICE

- Keep WING DE ICE ON only in case of severe icing conditions

(CM3) EXT LTS

- Turn on Nose, Taxi and Landing lts to minimize birdstrike hazard during landing (applicable to daytime operation)

(CM3) SIGNS

- Set No SMOKING sw to NO SMOKING

(CM1-2) SLATS/FLAPS & KRUGER

- (CM1) Check airspeed below VFE
- (CM1) Order "FLAPS 25"
- (CM2) Move SLATS/FLAPS handle to FLAPS 25° position and announce "FLAPS SELECTED 25"
- (CM2) Set ATS index to FINAL TARGET SPEED
Cross check with SFPI and announce: "FLAPS/SLATS 25/25 KRUGER"

(CM3) IGNITION

- Set ignition rotary sel as required

(CM1) AIRCRAFT SPEEDS

- Check TAS against GS for possible windshear condition

(CM1-2) GPWS

- In case the GPWS is activated react with pitch control and power without delay

(CM1) CABIN REPORT

- Obtain cabin report from purser

(CM3) FINAL CHECKLIST

The FINAL Challenge/Response checklist has to be read by CM3 and responded by CM1 and CM2 accordingly. It may be read down to the line after the landing gear has been extended and finished after final flap setting

CM3		FINAL
CM1	Landing gear	3 GREEN
CM1	Auto brakes	(AS REQD) _____
CM2	Spoilers	ARMED
CM3	Anti skid	CKD
CM3	Signs	SET
CM1	Flaps and slats	____ / ____
CM3	Approach checklist	COMPLETED

(CM1-2) FLIGHT PARAMETERS

- Check the flight parameters. PF announces any FPI change.
- PNF calls out if:
 - Pitch attitude becomes lower than 0° or greater than 10° nose up
 - Bank angle becomes greater than 7°
 - V/S greater than 1000 ft/min
 - Airspeed deviations of more than +10 kt or - 5 kt
 - LOC or G/S deviation greater than 1 dot
 - Any significant changes in ground speed that might indicate windshear
- If a call-out occurs during the final approach, a go around must be initiated.

GO AROUND

- (CM1) Announce "GO AROUND - FLAPS"
- (CM1) Simultaneously depress either one of the "GO LEVER" on the throttles and move control column aft to adjust a maximum of 18° pitch attitude, aiming at V_{APP} as a minimum
- (CM1) Check N1 (if ATS engaged) and SRS on FPI
- (CM1) Initiate forward throttle movement (or follow through if ATS is engaged)
- (CM3) Adjust go-around N1 (or monitor closely autothrottle). In case of disengagement, autothrottle can be reengaged immediately
- (CM2) Retract FLAPS one step when N1 is above 90% and announce new FLAPS position when indicated

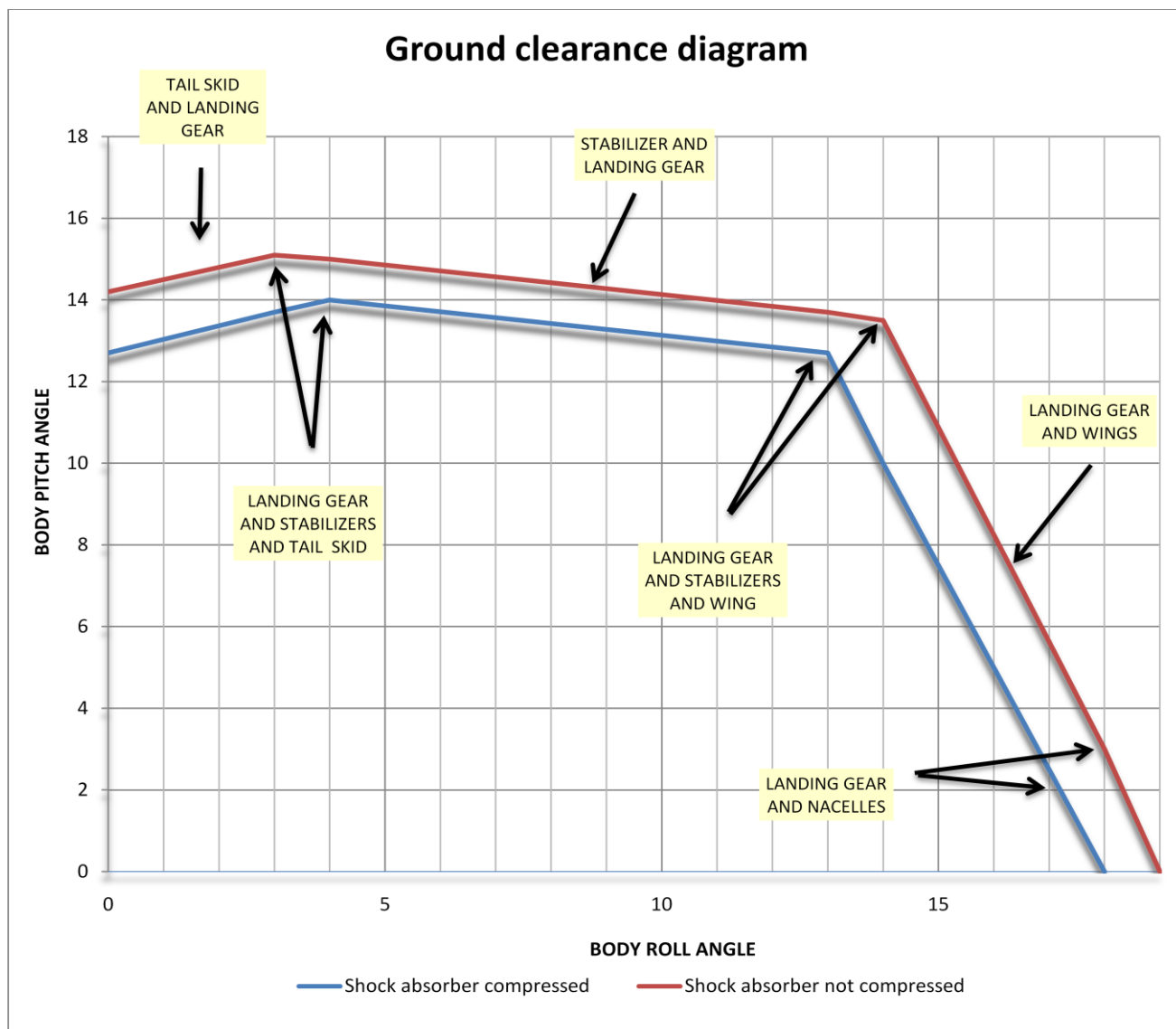
LANDING GEAR

- (CM2) Announce "POSITIVE CLIMB"
- (CM1) Request "GEAR UP"
- (CM2) Set L/G Lever to UP and acknowledge "COMING UP"
- (CM2) When L/G lts are OFF, set L/G lever neutral and announce "GEAR UP"

(CM2) PARAMETER MONITORING

- Monitor:
 - Pitch attitude
 - Bank attitude
 - Speed and speed trend
 - Flight path
 - Engine parameter
- A call out must be made in case of excessive deviation:
 - Speed dropping below $V_{LS} - 5$ kt
 - Speed trend negative
 - Pitch attitude in excess of 20 degrees
 - Bank angle in excess of 15 degrees (30 degrees if missed approach procedure requires a turn)
 - Significant thrust loss

LANDING ROLL



LANDING ROLL

(ALL) MARKER PASSAGE

- Observer appropriate marker light illuminate and associated sound are heard, cross check altitude
- Depress CLOCK pushbutton when passing over OUTER MARKER or OUTER BEACON

FINAL PROGRESS

(CM1) PF: Monitor final progress

- (CM2) Announce "FINAL APPROACH FIX", "1000", "500", "HUNDRED ABOVE MINIMUM" and "MINIMUM" at MDA as appropriate using barometric reference
- (CM3) Announce radio altimeter height 200, 100, 50, 30, 20, reduction, 10 and 5
- (CM2) Check flight parameters
NOTE: CM2 calls out:
 - V/S greater than 1000 ft/min
 - IAS difference of more than +10 kt or -5 kt
 - LOC/GS (ADI) exceeds 1 DOT

(CM1) FLARE

- Begin to increase pitch attitude by about 2 deg at 30 ft
NOTE: If V/S is greater than 700 ft/min, increase pitch attitude at 40 ft rather than 30 ft
- Monitor attitude and call out:
 - PITCH PITCH when pitch reaches 10°
 - BANK BANK when bank reaches 7°

(CM1) THROTTLES

- Start reducing throttles smoothly to idle at 20 ft

(CM3) GROUND SPOILERS

- Announce "ground spoilers extended" after touch down
NOTE: If the ground spoilers cannot be extended automatically, they can be extended manually

(CM1) REVERSE

- (CM1-3) Immediately after touchdown of main landing gear, pull both reversers levers to the mechanical stop
- After reverse thrust is initiated, a full stop landing must be performed
- Check the REV UNLK amber light on
- Check both REV green light on and announce "REVERSE GREEN"

(CM1) DIRECTIONAL CONTROL

- Use rudder pedals for directional control

(CM1) BRAKES

- Apply brakes as required

OR

- Monitor auto-braking

(CM1) REVERSE

- At 80kts IAS, return reverse levers to the idle position
- Set reverse levers to stowed position when taxi speed is reached, or before leaving the runway

AFTER LANDING

(CM1-2) EXT LTS

- Set LDG LTS to RETRACT OFF
- Set STROBE LTS to OFF

(CM3) TRANSPONDER

- Set ATC TRANSPONDER rot sel to STBY

(CM3) IGNITION

- Set ignition rot sel to CRANK

(CM3) ICE PROTECTION

- Set WING & NACELLE anti-ice sel to CLOSE RESET/CLOSE

(CM1) GROUND SPOILERS

- Retract and disarm GRD SPLR

(CM2) PITCH TRIM & FLAPS/SLATS

- Reset TRIM to 1° UP and retract SLATS and FLAPS to SLAT extend position
NOTE: If the approach was made in icing conditions, or if the runway was contaminated with slush or snow, do not retract the flaps until after engine shutdown, once the ground crew has confirmed them clear of obstructing ice. Retract SLATS fully during present or expected adverse weather

(CM3) APU

- Start APU and check APU GEN OFF lt extinguished (only if ground power unavailable)
NOTE: Before starting APU, set BATTERY Sels to ON to ensure that batteries act as buffers to reduce electrical transients. Return BATTERY Sels to NORM after APU start

(CM3) BRAKE FANS

- Set FAN sw to ON and check TEMPS for correct braking of each wheel
NOTE: An illuminated amber light on the BRAKE TEMP panel does not indicate an abnormal condition. But in this case the temperature of all 8 brakes should be checked 10 min after landing. Maintenance actions should be carried out if the temperature difference between the hottest and the coldest brake on one gear is more than 150°C

(CM3) PROBE HEAT (PITOT)

- Set all sw to OFF

(CM3) OUTFLOW VALVES

- Check 4 outflow valves VALVE POS indicate OPEN and GRN AUX VALVES lt is off

(CM3) AFTER LANDING CHECKLIST

- The actions have to be performed after leaving the runway
- The AFTER LANDING unilateral checklist has to be read upon request of the CM1 silently by CM3

CM3 AFTER LANDING		
CM3 (s)	Ignition	CRANK
CM3 (s)	Ice protection	(AS REQD) _____
ALL	Radar & transponder	STBY
CM3 (s)	Outflow valves	OPEN
CM3 (s)	Probe heat	OFF
CM3 (s)	APU	STARTED
CM3 (s)	Pitch trim	1° UP
CM3 (s)	Flaps and slats	(AS REQD) _____
CM3 (s)	Spoilers	DISARMED
CM3	After landing checklist	COMPLETED

PARKING

(CM1) PARKING BRAKE

- set parking brake handle
- Observe pressure and PARKING BRK ON lt on MWP
Note: Parking brake must stay on as long as engines are running

(CM1) GROUND CONTACT

- Establish ground communication

(CM3) APU BLEED

- Set APU BLEED sel to AUTO and check m.i. in line (if operating)

(CM1) ENGINES

- Set FUEL LEVERS to OFF and check fuel flow reads zero

Engine cool-down time prior to shutdown:

For thermal stabilization before shutdown, the engines should be operated at idle or required taxi thrust for three minutes or until gate arrival whichever is earlier

If using ground power, shut down eng 2 when aircraft stopped. Once ground power is connected shut down eng 1

(CM1-3) PARKING BRAKE

- Check chocks in place and release parking brake to improve cooling (not simulated in FSX)

(CM2) EXT LTS & BEACON

- Set NAV LT to OFF or TOW PARK and LOGO as required
- Set BEACON to OFF
- Set all other EXT LTS to OFF

(CM2) SEAT BELTS

- Switch to OFF

(CM2) WINDOW HEAT

- Switch to OFF. If aircraft is in transit, window heat may be left ON

(CM3) FUEL PANEL

- Set all fuel pumps to OFF if APU no longer required, check m.i. cross line and PUMP PRESS LO arrow extinguished
- Read FUEL USED
NOTE: FUEL USED + TOTAL FUEL (remaining fuel) is cross-checked with departure fuel.
- Reset FUEL USED

(CM3) BRAKE TEMP

- Set BRAKE FANS sw OFF when not required

(CM2) PARKING CHECKLIST

- The PARKING Challenge/Response checklist has to be read by CM2 and responded by CM1, CM2 and CM3 accordingly
The actions have to be performed after the A/C has come to a complete stop at the parking position.

CM2	PARKING	
CM1	Engines	SHUT DOWN
CM1	Exterior lights	(AS REQD) _____
CM1	Signs	(AS REQD) _____
CM3	Fuel pumps	(AS REQD) _____
CM1	Parking brake/chocks	SET
CM2	Parking checklist	COMPLETED

LEAVING THE AIRCRAFT

- (CM1) ANTISKID OFF
- (CM1) EVAC SIGNAL OFF
- (CM1) RUDDER TRAVEL & PITCH FEEL OFF/RESET
- (CM2) EXT LTS OFF
- (CM2) SIGNS OFF
- Set EMERG EXIT lt sel to OFF
- (CM2) HF(S) OFF
- (CM2) INS OFF
- (CM2) RADIO MASTER SUPPLY OFF
- (CM3) OIL QUANTITY: check oil quantity ind of both engines
- (CM3) AIR BLEED SET
- Set both PACK and APU BLEED VALVES to CLOSE
 - Set BLOWER FAN ON
 - Set APU MASTER SW to OFF and monitor APU shutdown
- NOTE: APU MASTER SW should be set to OFF at least 90 seconds after APU Bleed valve closing to avoid APU operation without fuel booster pump
- (CM3) BATTERIES OFF

CM3			LEAVING THE A/C		
CM2-3(s)	Switch off all equipment not required				
CM3	Emergency exit lights			OFF	
ALL	Batteries			OFF	

Normal procedures - Autopilot operation

TAKE-OFF, CLIMB AND CRUISE

Before take-off

AT SPD	Set speed to V_2 (automatic when clicking hidden zone on ASI)
N1 limit computer	FLX TO or TO
FD bars switch	Select ON
HDG knob	RWY heading selected
HDG sel	SELECT
ALT selector	FIRST CLEARED ALT
ALT ACQ	SELECT

Ready for T/O

ATS lever	ARM
TOGA button (bottom of main panel)	Press

Initial climb (gear up)

AP	OFF
----	-----

Acceleration height

N1 limit computer	CR (or CL)
AT SPD	SELECT CLIMB SPEED (250kt typically)

(Decrease pitch to about 10° or slightly less to accelerate)

When the required climb speed is reached (trim)

AP	CMD
IAS mode	SELECT

When ALT ACQ in green illuminates on the FPI

AT SPD	SELECT DESIRED SPEED
AT SPD mode	SELECT

Climb from 5000-6000 feet at 250 kts (typical path)

ALT selector	SELECT 6000
ALT ACQ	SELECT

(At 6000 feet ALT ACQ green extinguishes and ALT mode engages automatically)

Climb to FL80 at 250 kts

ALT selector	SELECT 8000
AT N1 mode	SELECT
IAS (after trim)	SELECT
ALT ACQ	SELECT

(ALT ACQ will unselect when IAS mode is engaged and needs re-engagement each time)

When ALT ACQ green illuminates

AT SPD	SELECT
--------	--------

Recleared FL310 commencing climb whilst increasing speed to 300kts

AT SPD counter	SELECT 300kts
ALT selector	SELECT 31000
ALT ACQ	SELECT
A/T N1 mode	SELECT

Set pitch manually or using VSPD mode to a climb at about 1500 fpm until speed reaches 300 kts, once established at 300 kts:

IAS mode	SELECT
Note: This action disengages ALT ACQ GREEN	
ALT ACQ	SELECT

At the transition IAS/Mach (for M.78 FL290)

IAS	PUSH (OFF)
The correct Mach speed is maintained by using manual PITCH or by using VSPD mode (the latter method has to be used in RVSM airspace)	

CRUISE

During climb

AT SPD	SELECT CRUISE SPD
When ALT ACQ green illuminates:	
AT SPD mode	SELECT
When FL310 is reached, ALT mode engages automatically:	
N1 Limit Computer	SELECT CR

Lateral modes

HDG SEL mode

HDG SEL knob	PRESELECT HDG
HDG SEL	SELECT

Bank angle is about 23° (+/- 2°), never select more than 160° heading change at a time or the autopilot will have difficulty knowing which way to turn.

VOR/LOC mode

NAV PANEL	VOR frequency SELECT
CRS knob	CRS SELECT
HDG SEL	SELECT
V/L	SELECT

NAV mode

The NAV mode works with the CIVA INS and will follow the HDG guidance given by the INS. The HSI will show distance, time and off track information

Capture and tracking of localizer

NAV PANEL	ILS frequency SELECT
CRS knob	CRS select
HDG SEL	SELECT
APPR	SELECT

(intercept course should be 30° or less different from the localizer front course for a smooth intercept of the LOC, Backcourse approaches are not possible in this panel configuration and are in fact forbidden in many airlines)

DESCENT / HOLDING

Descent from FL350

We are at such a level that we will have to start descent at constant Mach number:

ALT selector	SELECT CLEARED LEVEL
ALT	DISENGAGE
ALT ACQ	SELECT
AT SPD	SELECT OFF
VSPD	ON

Descent from approx FL290 (slowly decrease throttle when IAS mode is selected)

SPD knob	SELECT DESCENT SPD
IAS	SELECT

When green ALT ACQ illuminates on FPI

AT SPD	SELECT
--------	--------

Descent to FL140 with 2500 fpm or more

ALT selector	SELECT 14000
IAS	SELECT
ALT ACQ	SELECT
AT disconnect	SELECT

Then reduce throttle slowly to initiate descent (to approx 60-65 N1) the lower the N1 the greater the descent rate..

When ALT ACQ green illuminates on FPI

AT SPD	SELECT
--------	--------

When FL140 is reached ALT ACQ extinguishes and ALT illuminates

Descent to FL120 and speed reduction to 250 kts

ALT selector	SELECT 12000
ALT ACQ	SELECT
AT SPD	SELECT 250

Descent FL120 to 4000 feet

Same as normal descent using IAS or VSPD mode

APPROACH AND LANDING

Holding

Aircraft configuration: clean

AP (1 or 2)	CMD
ALT	SELECT
HDG SEL	SELECT
AT SPD	ARM/SELECT

Approach preparation

NAV PANEL	ILS frequency SELECT
CRS knob	RUNWAY HDG SELECT
DECISION HEIGHT	SELECT
N1 limit computer	SELECT GA
FLAPS 8° CONFIGURATION	ESTABLISH
AT SPD knob	SELECT 180kts

In order to reach 2 dots with Flaps 8° - 180kts

Base leg, cleared to intercept

HDG knob	SELECT INTERCEPT HEADING
APPR	SELECT

(The APPR mode must be selected before interception of the LOC)

LOC Capture (V/L green)

HDG knob	RUNWAY HDG SELECT
----------	-------------------

1 dot below the GLIDE

FLAPS 15° CONFIGURATION	ESTABLISH
-------------------------	-----------

LANDING GEAR	DOWN
--------------	------

(Landing gear selection may be delayed down to 1200 feet AGL, in such cases flaps 15°/V₃ has to be maintained down to landing gear selection)

ALWAYS capture the glideslope from BELOW !!!

AT SPD knob	SELECT FINAL TARGET SPEED
-------------	---------------------------

Glide capture (G/S green)

SECOND FD	ENGAGE
-----------	--------

When crossing V₃:

FLAPS 25° CONFIGURATION	ESTABLISH
-------------------------	-----------

FINAL CHECKLIST	PERFORM
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You can now make an autoland (CAT 2 or CAT 3a) or at 200 feet AGL (latest) disengage the AP and land manually (CAT 1), the second FD or AP has to be selected before reaching 1500 feet AGL.