AIRBUS A319/320/321
Sample Oral Questions
April 1, 2002
(Updated 3/02/03)

Pre-Departure

1. The minimum flight attendant compliment for the A319, A320 and A321 is as follows: FOM 4.3.9

	Standard Complement	PAX Boarding / Deplaning	At gate with PAX aboard
A319/320	**3**	3	1
A321	**4**	4	2

2. The captain arrives at the aircraft and observes that the inbound crew made an entry into the ME-100 describing the APU as being inoperative. The APU is then placed on the MEL by Maintenance. Since this MEL is not on the original dispatch release, is an amended release required? FOM 5.3.9

Yes – An amended Flight Release is required when a change is made in MEL/CDL items.

Additional changes requiring an amended Flight Release:
- T.O. Min fuel quantity
- Gate Release fuel quantity (decrease only)
- Destination
- Alternate(s)
- Aircraft tail number
- Remarks content

3. During the exterior aircraft inspection, the pilot notices that the horizontal stabilizer is set at 5 units of nose up trim. What action should the pilot take? PH 12.1.2

Contact maintenance. The stabilizer is electrically controlled by one of three motors, or mechanically controlled by the pitch trim wheels (through a cable), provided green or yellow hydraulic power is available. Mechanical pitch trim control has priority over electrical control. The trim wheels move any time the stabilizer moves. After touchdown, the stabilizer trim is automatically reset to 0°.

4. During the exterior aircraft inspection, it is noted that the red disk associated with the APU extinguishing agent is missing. What does this signify? PH 8.2.2

Indicates the agent has discharged overboard due to bottle overpressure.

5. During preflight of the GNADIRS panel, if the IRUs were not previously aligned, the crewmember should select ALIGN IRS on the MCDU _____ to avoid excessive ADIRS drift. PH 3.4.1

If Inertials <u>not</u> previously aligned:
- MODE Selectors … NAV
- Select ALIGN IRS (3R) on MCDU just after selecting NAV to avoid excessive ADIRS drift

If Inertials previously aligned:
- Wait at least 3 minutes after the aircraft comes to a complete stop
- MODE Selectors … OFF then NAV within 5 seconds
- Select ALIGN IRS (3R) on MCDU during the 30-second realignment

Note: The IRSs are normally aligned to the departure airport reference point coordinates. Use these coordinates, as stored in the navigation database for any flight with GPS. Use of gate coordinates (insert/slew in the INIT A page) should be reserved for aircraft with both GPSs inoperative.

6. It is permissible to use both APU bleed air and external (LP) conditioned air simultaneously if conditions such as very high ambient temperatures are present (True or False). PH 2.9.3

Do not use external conditioned air simultaneously with the airplane air conditioning packs.

7. Is it permissible to use high-pressure (HP) ground air to provide an air supply to the packs for heating or air conditioning? PH 2.9.4

Airplane air conditioning packs may be used with high-pressure ground air provided the air supply is free of oil contamination.

8. If the APU is supplying bleed air for air conditioning, the pack controllers select _____ flow automatically, regardless of the PACK FLOW/ECON FLOW switch position. PH 3.4.1

Pack controllers select **High** flow (A319/320) or **Normal** flow (A321) automatically.

9. The A319/320/321 batteries supply power for: PH 7.1.4

- APU starting if the main buses are not powered
- Essential aircraft systems in the event of total AC power loss
- Refueling

10. What electrical power sources may be used for refueling? PH 9.1.6

- External power
- APU
- Battery

A fueling/defueling point and refueling control panel is located under the right wing. The wing tanks can also be refueled through overwing refueling points. Fueling is normally accomplished automatically by pre-selecting the required fuel load on the fueling panel. External power, the APU, or battery power can be used for refueling.

11. During preflight, the flight crew notices that the accumulator pressure is not in the green band on the ACCU PRESS indicator. What is the required action? PH 3.4.1

The accumulator must be in the green band. If required, use the YELLOW ELEC PUMP to recharge the brake accumulators.

WARNING: Yellow and Green hydraulic systems are pressurized from the Yellow electric pump through the PTU. Check with ground crew prior to activating the pump.

12. While reviewing the fuel slip and comparing it with the fuel on board, a discrepancy between the "Gate Release" fuel load and the actual fuel on board is noticed. What is the maximum variance between the gate release fuel load and the actual fuel on board? FOM 5.3.12

A variance of 500 pounds or 1% of the Gate Release fuel load (whichever is greater) is allowed.

If the FOB is _____ than the allowable variance …	**Then notify the Dispatcher to …**
within	No further action required providing T.O. MIN fuel and maximum takeoff/climb weights requirements are met
greater	correct the W&B or defuel
less	correct the W&B and obtain an amended Flight Release (if fuel is <u>not</u> added) or add fuel

Do not takeoff with less than T.O. MIN fuel.

13. May a flight deck crewmember enter the actual fuel on board into the ACARS prior to each flight deck crewmember confirming the correct fuel load? FOM 5.3.15

No. Enter the actual fuel on board into ACARS only after fueling is complete, the fuel load is within allowable variance, and each flightdeck crewmember has confirmed the correct fuel load.
Note: FOB is automatically loaded into ACARS Initialization page on Airbus aircraft.

14. What is the total usable fuel tank quantity for the A319/320? The A321? PH 2.8.1

	A319/320	**A321**
Wing Tanks	27,500 lb	27,500 lb
Center Tank	14,500 lb	14,500 lb
ACT	-	10,500 lb
TOTAL	**42,000 lb**	**52,500 lb**

15. During preflight, the flight crew should ensure that the engine oil quantity is at or above __12.5__ quarts. PH 3.4.1

- **F**UEL – Balance, configuration, quantity
- **H**YD – Quantity
- **E**NG – Oil quantity at or above 12.5 quarts
- **D**OOR – O_2 pressure

16. During FMGS initialization, the message "PLEASE WAIT" appears. The flight crew should: PH 3.4.1

If PLEASE WAIT appears, do not press any MCDU key until this message extinguishes.

17. A cost index of __70__ is mandatory unless COST INDEX 35 is annotated in the remarks section of the flight release. FOB 10-02

Tactical Cost Index: Initially use the minimum cost index which is printed on the Flight Release. For each flight, SABRE will automatically add the planned enroute time to the OFF time to determine if the flight is planned to arrive ahead of schedule. If an early arrival is calculated, SABRE will automatically determine if the flight will still arrive at or before the scheduled arrival time using the Long Range Cruise Cost Index. If so, the crew will receive an ACARS message 5 minutes after takeoff requesting the Long Range Cruise Cost Index be used.

18. During preflight, what information found in the TPS may be preset in the FMGC? TPS Line Training Guide

MSL MIN LVL OFF altitude for the expected runway/flap configuration.

19. Reference the TPS Line Training Guide located in this study guide. Assuming that the TPS has been validated (OAT is 10°C), what is the MSL engine out acceleration altitude for runway 18L at CONF 2? TPS Line Training Guide

1,750 MSL

20. Reference the TPS Line Training Guide located in this study guide. Assuming that the TPS has been validated (OAT is 10°C), can AT be used for departure on runway 18R? TPS Line Training Guide

Yes, AT 50°C

21. Reference the TPS Line Training Guide located in this study guide. What Flap setting must be used with the data in the Thrust / V-Speed Section? TPS Line Training Guide

CONF 1

22. It is not necessary to brief normal or standard takeoff procedures during the Departure Review. The following items should be part of every Departure Review: FOM 5.3.19

Review the departure with emphasis on anticipated track and altitude restrictions. It is not necessary to brief normal or standard takeoff procedures. Brief the following items:

- ATC Clearance
- SID or IFR Departure
- Any applicable special considerations, such as:
    - unique airport advisory departure information,
    - unique noise abatement procedures,
    - unique engine failure during takeoff procedures,
    - significant terrain or obstacles in the terminal area relative to departure routing,
    - significant weather conditions, and
    - any other known risks and intentions

23. The enroute weather may cause a Severe Weather Avoidance Plan (SWAP) to be enacted; therefore, ATC may issue a Coded Departure Route (CDR) in lieu of a full route clearance. Where would one find the full description of these routes and information regarding fuel and MEL requirements for each route? FOM 10.8.3

When CDRs are anticipated, the dispatcher will confirm sufficient Fuel/MEL for specific CDRs by annotating the following in the Flight Release RMKS section:

RMKS/DISPATCHER HAS CONFIRMED FUEL/MEL SUFFICIENT FOR FOLLOWING CDRS
ADVISE DISPATCHER OF CDR YOU RECEIVE FROM ATC WHEN TIME PERMITS

The dispatcher will list the confirmed CDRs on the Flight Release.

Procedure - When ATC issues a CDR clearance do the following:

CDR Procedure	
Step	Action
1	Check the ///SPECIAL INFO MESSAGES/// section of the Flight Release to see if the amended clearance is a listed CDR.
2	If the amended clearance is not a listed CDR, proceed to Step 6.
3	Check the RMKS/ section of the Flight Release to see if the CDR has been confirmed by the controlling dispatcher.
4	If the CDR has not been confirmed, proceed to step 6.
5	If the CDR has been confirmed by the controlling dispatcher, the captain may accept the clearance. Notify the controlling dispatcher via ACARS or radio of the reroute as time permits. (End of procedure)
6	Relay the amended clearance or CDR to the controlling dispatcher and Wait for an amended Flight Release before accepting the amended clearance.

24. When should a takeoff alternate be declared? QRH OD-1, FOM 10.5.5

If departure airport is below CAT I landing minimums for runway in use, call dispatcher for a takeoff alternate.
Exception: Airbus may use landing minimums down to CAT IIIA at the departure airport, when available.

Pushback/Taxi

25. If, during engine start with the parking brake ON, the aircraft starts to move due to a parking brake failure, the crewmember should: PH 3.5

Immediately release the PARKING BRK handle to restore braking by pedals.

26. Icing conditions exist on the ground and for takeoff when _____: PH 2.6.1

Ground and takeoff:

- Outside Air Temperature (OAT) is 10°C (50°F) or below ***and***
- visible moisture in any form is present (i.e., clouds, fog with visibility of 1 mile or less, rain, snow, sleet, or ice crystals), ***or***
- when operating on ramps, taxiways, or runways where surface snow, standing water, or slush may be ingested by the engines or freeze on engines, nacelles, or engine sensor probes.

In flight:

- Total Air Temperature (TAT) is 10°C (50°F) or below ***and***
- visible moisture in any form is present (i.e., clouds, fog with visibility of 1 mile or less, rain, snow, sleet, or ice crystals).

Engine anti-ice operation:

- Engine anti-ice must be ON during all ground and flight operations when icing conditions exist or are anticipated (except during climb and cruise when the temperature is below -40°C SAT).
- Engine anti-ice must be ON prior to and during descent in icing conditions (including temps below -40° SAT).

Wing anti-ice operation:

- Select WING ANTI ICE ON after thrust reduction altitude
- Normally, WING ANTI ICE should be selected OFF at the FAF
- If in severe icing conditions, WING ANTI ICE may be left ON for landing

Wing anti-ice is not permitted on the ground, or in flight when the TAT exceeds 10°C.

27. Low visibility taxi operations will be conducted in accordance with the Surface Movement Guidance Control System (SMGCS) or appropriate foreign system. If the RVR is less than _600_, taxi operations are only authorized in conjunction with the use of the Low Visibility Chart(s) in the Route Manual. FOM 5.5.3

Policy: Taxi operations are authorized if the captain decides visibility is sufficient.

28. During reduced/low visibility taxi operations, pilots should request approval to cross all runways (True or False). FOM 5.5.3

True: During reduced visibility, communicate with ATC before crossing all runways.

29. During the FLIGHT CONTROLS check, the F/CTL page is automatically shown when full sidestick is applied. Accomplish this check in a slow and deliberate manner, and hold full sidestick long enough for full control surface travel to be reached (True or False). PH 3.8

True. When full sidestick (or rudder deflection greater than 22°) is applied, the F/CTL page is automatically shown for 20 seconds.

30. During taxi for departure, the ACARS fails prior to the crew receiving their Final Weight and Balance. The TPS has been validated. What weight and balance information should be requested via the radio? FOM 9.1.4

Form OF-11B side 1 shaded items.

31. What is the maximum takeoff weight for the A319, A320, and A321? PH 2.2.2

Maximum Takeoff Weight	
A319	**166,400 lbs**
A320	**169,700 lbs**
A321	**205,000 lbs**

32. The following items should be part of the Takeoff Briefing: FOM 5.6.1

- Initial heading
- Initial altitude
- Initial fix or route segment
- Summarize applicable special considerations previously briefed and any new considerations

33. The QRH Ops Data section addresses Severe Weather/Windshear policies and procedures. One windshear precaution for takeoff is to "consider increased rotation speed" in order to increase aircraft performance capability after lift-off. How is the increased rotation speed determined? FOM 10.6.3

1. Set V_1, V_R, and V_2 based on actual takeoff weight
2. Determine RWY limit takeoff weight for departure runway at appropriate flap/bleed/temp combination from TPS Airport Analysis Data Section. Use final TOW and W&B message if TPS is not available/usable.
3. Determine V_R based on the maximum runway allowable takeoff weight
4. Mentally note increased V_R and delay "Rotate" callout and rotation to that speed (not more than 20 kts above actual weight V_R); do <u>not</u> reset airspeed bugs to the higher speed. If windshear is encountered at or beyond the actual takeoff weight V_R, do <u>not</u> attempt to accelerate to the increased V_R, but rotate without hesitation. Do <u>not</u> delay rotation beyond 2,000 ft of runway remaining.

34. Reference the TPS Line Training Guide located in this study guide. ACARS shows the gross takeoff weight is 154,200 lbs. and provides data for runway 36L and 36R. ATC asks if you can use runway 18L for departure. Assuming the TPS has already been validated, and the OAT is 10°C with calm winds, is the aircraft legal for takeoff on runway 18L? TPS Line Training Guide

Yes, CONF 2

35. Reference the TPS Line Training Guide located in this study guide. ACARS shows that the gross takeoff weight is 152,700 lbs. and provides data for runway 36L and 36R. ATC asks if you can use runway 18L for departure. Assuming the TPS has already been validated (OAT is 10°C), is the aircraft legal for takeoff? TPS Line Training Guide

Yes

36. Reference the TPS Line Training Guide located in this study guide. ACARS provides data for 18L and 18R. Is the aircraft legal for takeoff on runway 18L at C11? TPS Line Training Guide

No. The ACARS and TPS do not provide the C11 intersection data.

37. Do not attempt a 180° turn on a surface less than <u>__100__</u> feet wide (A319/320) or <u>__105__</u> feet wide (A321). PH 18.2.3

- A319/320 – 100 feet wide
- A321 – 105 feet wide

Takeoff

38. The minimum takeoff RVR for the departure runway is 600. If the actual RVR is 1400, is the first officer permitted to conduct the takeoff? FOM 5.7.1

The captain will conduct the takeoff (ground roll through clean-up) when visibility is less than
- 1600 ft RVR for any RVR on that runway, or
- ¼ statute mile (if no RVR is reported for that runway)

39. The RVR for the runway in use is 1600. If the first officer has accumulated 40 hours on the aircraft type (including IOE), is he permitted to conduct the takeoff? FOM 4.14.7

No. A first officer is considered "low time" if he has less than 100 hours in the aircraft type (including IOE).

The captain will make all takeoffs (from ground roll initiation through clean-up), approaches (from 3,000 feet AGL and below), and all landings when any one of the following conditions exist:
- Runway is
    - contaminated with water, snow, slush, or similar conditions which may adversely affect aircraft performance
    - RVR is reported 4000 or less
    - Braking action is less than "Good"
    - Crosswind component is greater than 15 knots
- Operating at an airport with the prevailing visibility ¾ mile or less
- Operating at any Special Qualification Airport
- Any reported windshear in the airport vicinity
- Other circumstances as determined by the captain

Note: CAT II/III operations are authorized with a low time first officer.

40. What is the maximum brake temperature for takeoff? PH 2.10.2

300°C

41. If a FLEX temperature is not entered in the PERF TAKEOFF page of the MCDU, and the thrust levers are positioned in the FLEX detent, a warning will be generated. In this case, the flight crew should: PH 18.3.2

Move the thrust levers to the TOGA detent and execute a max thrust takeoff. When the thrust levers are moved to the TOGA detent, the warning will be cancelled.

42. The ECAM inhibits the warnings/cautions which are not paramount from 80 knots to 1500' AGL (or 2 minutes after lift-off, whichever occurs first). What types of items are not inhibited when the ECAM "TO INHIBIT" memo is displayed? PH 18.3.6

- ENGINE FIRE
- APU FIRE
- ENG FAIL (ENGINE SHUTDOWN)
- ENG OIL LO PR
- L+R ELEV FAULT
- A/P OFF
- CONFIG
- FWC 1+2 FAULT

43. The captain's call "REJECT" will alert the first officer that the captain has decided to discontinue the takeoff. The first officer duties include: PH 18.3.6

- Diverts his attention to airspeed and trend line (Ensure the speed trend line indicates deceleration)
- Informs the flight attendants and passengers of the situation, via the PA, in a timely manner.
- Advises the control tower of the rejected takeoff and intentions, when able.

44. If an ECAM message should appear after liftoff, no action will be taken (except canceling the audio warning through MASTER WARN light) until the: _____. PH 21.1.2

- Flight path is stabilized
- The airplane is at least 1,000' AFE or obstacle clearance altitude, whichever is higher, in case of engine failure during takeoff, approach, or go-around.

45. After liftoff, the predictive windshear system generates a warning with a red "W/S AHEAD" indication on the PFD, a windshear icon on the ND, and an aural "WINDSHEAR AHEAD." What is the appropriate procedure? PH 18.8.3

- During takeoff: Reject the takeoff
- After lift-off: TOGA. Follow SRS commands. Retract gear & flaps on schedule
- During approach: Execute a normal go-around using TOGA thrust. Retract gear and flaps/slats on schedule.

46. The flight crew should not attempt to maneuver around a predictive windshear icon (on the radar display) unless _____? PH 18.8.1

Unless accompanied by a weather return. The icon only displays areas of moisture and may not display more severe adjacent areas of windshear. If maneuvering is accomplished, ensure that wings are level approaching windshear area to maximize aircraft performance.

47. Wing anti ice should be turned ON in anticipation of icing conditions or if airframe icing is occurring. If required during departure, it should be turned on after _____. PH 3a.1.3

Wing anti-ice operation:

- Select WING ANTI ICE ON after thrust reduction altitude
- Normally, WING ANTI ICE should be selected OFF at the FAF
- If in severe icing conditions, WING ANTI ICE may be left ON for landing

Wing anti-ice is not permitted on the ground, or in flight when the TAT exceeds 10°C.

48. At heavy takeoff weights, the S speed on the A321 may be higher than the MAX speed of CONF 1 + F (225 knots). In this scenario, is it permissible to retract the flaps/slats at speeds below S speed? PH 18.3.2

No. At heavy takeoff weight, the S speed on the A321 may be higher than the MAX speed of CONF 1+F (225 knots). In this case, continue to accelerate. On reaching 210 knots the automatic flap retraction will occur and the MAX speed will move to 235 knots.

Climb

49. What is the fuel feed sequence on the A321? PH 9.1.7

The fuel transfer system controls the flow of fuel from the center tank to the wing tanks, which feed the engines. The tanks empty in the following sequence:

- Aft ACT transfers fuel into the center tank
- Forward ACT transfers fuel into the center tank
- Center tank transfers fuel into the wing tanks
- Wing tanks

With the MODE SEL pb in AUTO, the Fuel Level Sensing Control Unit (FLSCU) has automatic control of the transfer valve. When the transfer valve is open, fuel from the wing tank pumps flows through the jet pump and creates suction. This suction moves the fuel from the center tank to the related wing tank. The FLSCU automatically closes the associated center tank transfer valve when the wing tank is full. The transfer valve reopens the center tank transfer valve when the engines have used 550 lbs of wing tank fuel.

With the MODE SEL pb in MAN, the center tank transfer valves open. Wing tank overflow must be prevented by selecting the CTR TK XFR pbs OFF when the wing tanks are full. They must also be selected OFF when the center tank is empty.

With the ACT pb in AUTO, automatic control of the transfer occurs after takeoff at slats retraction. It is initiated if the center tank high-level sensor has been dry for 10 minutes and fuel remains in either ACT. Fuel transfer from the ACTs to the center tank is made by pressurizing the ACT, closing the ACT vent valves, and opening the air shutoff and inlet valves. ACT2 transfers first. During transfer, if the center tank high level sensor gets wet, transfer from the ACT stops. The transfer valve opens when the center tank high sensor is dry for 10 minutes.

50. What are the turbulence penetration speeds for the A319/320 and A321 aircraft? PH 2.4.1

	A319/320	**A321**
At or above 20,000 feet	**275 KIAS/.76M**	**300 KIAS/.76M**
Below 20,000 feet	**250 KIAS**	**270 KIAS**

51. The recommended holding speed for a flight above 6,000 feet through 14,000 feet is __230 KIAS__. FOM 5.8.3

Altitude	**Maximum Airspeed**	**Inbound Leg Timing**
MHA through 6,000 ft	200 KIAS	1 Minute
Above 6,000 ft through 14,000 ft	230 KIAS (210 KIAS where published)	
Above 14,000 ft	265 KIAS	1.5 Minutes

52. In addition to CRZ altitude, the PROG page displays optimum (OPT) and recommended maximum (REC MAX) altitudes. REC MAX altitude provides __1.3__ g protection. PH 18.4.3

Under no circumstances will REC MAX altitude be used when turbulence is present.

Cruise

53. What is the maximum landing gear extension altitude? PH 2.10.3

- Maximum landing gear extension altitude: **25,000 feet**
- Maximum operating altitude with slats or slats and flaps extended: **20,000 feet**
- APU generator can supply 100% of load up to 25,000 feet
- APU bleed air may be provided up to 20,000 feet

54. Should normal electrical power be lost, what flight deck lighting is maintained? PH 5.20.1

- Captain's instrument panel
- Standby compass
- Right dome light (provided DOME switch set DIM or BRT)

55. If engine anti ice is in use and AC electrical power is lost, what happens to the engine anti-ice valves? PH 6.1.3

- Engine anti-ice: The valves **open** automatically
- Wing anti-ice: The valves **close** automatically

56. When would the flight crew pull a yellow circuit breaker? PH 7.1.10

- Green – Monitored by ECAM system
- Red – Wing tip brake C/B
- Yellow – pulled in compliance with prescribed procedure on battery power only

57. Both cargo compartments are equipped with smoke detector loops. On the A319/320, the forward compartment contains _2_ smoke detectors, whereas the A321 contains _4_ smoke detectors. PH 8.1.4

	FWD	AFT
A319/320	2 smoke detectors	2 loops with 2 smoke detectors in each
A321	4 smoke detectors	3 loops with 2 smoke detectors in each

Both cargo compartments are equipped with smoke detector loops. The forward compartment contains two smoke detectors in the A319/320 and four smoke detectors in the A321. In the A319/320, the aft compartment contains two loops with two detectors each. In the A321, the aft compartment contains three loops with two smoke detectors in each. A Smoke Detection Control Unit (SDCU) issues a smoke warning when two smoke detectors of one loop detect smoke. If one smoke detector fails, the system remains operational with the other detector.

Cargo smoke is indicated by an aural CRC, the illumination of the MASTER WARN and CARGO SMOKE light on the CARGO SMOKE panel.

One extinguisher bottle supplies one nozzle in the forward compartment and two nozzles in the aft compartment. The agent is discharged by pressing either the FWD or AFT DISCH pb.

If the cargo smoke warning is activated in either compartment, the associated isolation valves close and the extraction fan stops.

Cargo Fire Suppression: If a cargo smoke warning occurs on the ground when the cargo door is open, notify appropriate ground personnel. Do not discharge the cargo fire extinguisher. Notify ground personnel to investigate the source of the smoke.
When the fire extinguisher has been discharged, notify ground personnel before opening the door.

58. The RAT is a propeller driven pump that pressurizes the blue hydraulic system. It can extend automatically when AC 1 and AC 2 are not powered, or it can be deployed manually by depressing either the RAT MAN ON pb or the EMER ELEC PWR MAN ON pb. What is the functional difference between these two pbs? PH 11.1.4

- EMER ELEC PWR MAN ON pb – Extends the RAT and powers the emergency generator by pressurizing the blue system
- RAT MAN ON pb – Will only pressurize the blue system, but not activate the emergency generator.

If both AC bus 1 and 2 are lost and the airspeed is above 100 kts, the RAT automatically deploys and pressurizes the Blue hydraulic system, which drives the hydraulically driven emergency generator. A generator control unit controls generator output, which is considerably lower than that of the main generators.

Once the emergency generator is up to speed it will supply power to the AS ESS BUS and DC ESS BUS (via the ESS TR). During RAT deployment and emergency generator coupling (approximately 8 seconds), the batteries supply power to these buses.

After landing, the DC BAT bus is automatically connected to the batteries when airspeed drops below 100 knots. When the speed decreases below 50 knots, the AC ESS bus is automatically shed, and power is lost to the CRTs.

The RAT can also be deployed manually by pressing the EMER ELEC PWR MAN ON pb on the overhead panel. The RAT can only be stowed on the ground.

The RAT can also be extended by depressing the RAT MAN ON pb, on the hydraulic panel. This pb will cause only the pressurization of the Blue hydraulic system and will not provide emergency electrical power.

59. As long as both pilots operate their sidesticks simultaneously, a "DUAL INPUT" audio voice message is given every five seconds and both green CAPT and F/O side stick priority lights flash. PH 12.2.2

Sidestick priority logic:

- When only one pilot operates the sidestick, it sends control signals to the computers
- When the other pilot operates his sidestick in the same or opposite direction, the system adds the signals of both pilots algebraically. The total is limited to the signal that would result from the maximum deflection of a single sidestick.
- Both green CAPT and F/O SIDE STICK PRIORITY lights flash and a "DUAL INPUT" audio voice message is given every 5 seconds as long as both pilots operate their sidesticks simultaneously.
- A pilot can deactivate the other sidestick and take full control by keeping his priority takeover pb depressed.
- To latch the priority condition, press the takeover pb for more than 40 seconds. This allows the pilot to release his takeover pb without losing priority. However, a pilot can at any time reactivate a deactivated sidestick by momentarily pressing the takeover pb on either sidestick.
- If both pilots press their takeover pbs, the pilot that presses last gets priority.
- In a priority situation:
    - A red light illuminates in front of the pilot whose sidestick is deactivated.
    - A green light illuminates in front of the pilot who has taken control, if the other sidestick is not in the neutral position (indicates a potential and unwanted control demand).
    - A "PRIORITY LEFT" or "PRIORITY RIGHT" audio message is given each time priority is taken.

60. Pressing the EMER CANC pb cancels aural warnings/cautions and extinguishes MASTER WARN/CAUTION lights. When should this function be used? PH 13.2.1

The EMER CANC pb should only be used in flight to suppress spurious MASTER CAUTIONS.

61. If the autothrust is malfunctioning, how can the crew disable it for the remainder of the flight? PH 14.1.12

When an autothrust instinctive disconnect pb is pressed and held for more than 15 seconds, the autothrust system is disconnected for the remainder of the flight, including α floor protection. The autothrust system can only be reset during the next FMGC power-up (on the ground).

62. The thrust lock function prevents thrust variations when the autothrust system fails and disengages. How should the crew suppress the thrust lock condition? PH 14.1.12

Moving the thrust levers out of the CL or MCT detent suppresses the thrust lock and allows manual control by means of the thrust levers.

The thrust lock function is activated when the thrust levers are in the CL detent (MCT detent with 1 eng out) and:

- The pilot disengages A/THR by pushing the A/THR pb on the FCU, or
- The A/THR disconnects due to a failure

The thrust is locked or frozen at its level prior to disconnection.

When thrust lock is active:

- "THR LK" flashes amber on the FMA
- ECAM "ENG THRUST LOCKED" flashes every 5 seconds
- ECAM displays "THR LEVERS … MOVE"
- A single chime sounds and the MASTER CAUTION light flashes every 5 seconds. All warnings cease when the thrust levers are moved out of the detent.

63. TOGA LK will annunciate in green on the FMA after the aircraft leaves alpha floor conditions. Is autothrust active? How is TOGA LK cancelled? PH 14.1.12

To cancel ALPHA FLOOR or TOGA LK thrust, disconnect the autothrust.

ALPHA FLOOR protection commands TOGA thrust regardless of the positions of the thrust levers. This protection is available from lift-off to 100 feet RA on approach.

ALPHA FLOOR calls up the following indications:

- "A FLOOR" in green surrounded by a flashing amber box on the FMA and in amber on the E/WD as long as α floor conditions are met.
- "TOGA LK" in green surrounded by a flashing amber box on the FMA when the aircraft leaves the α floor conditions. TOGA thrust is frozen and thrust lever movement will have no effect.

Note: ALPHA FLOOR is inhibited:

- under alternate or direct flight control law.
- In case of engine failure with flaps extended

64. Oxygen generation for a particular group of masks begins when a mask is pulled toward the seat. Oxygen generation lasts approximately __13__ minutes. PH 15.1.3

Oxygen mask container doors will automatically open when the cabin altitude exceeds 14,000 feet. The doors can also be opened manually by pressing the MASK MAN ON pb on the oxygen overhead panel. Illumination of the SYS ON light does not necessarily mean all masks have deployed.

65. If one pilot leaves their duty station above FL 250, the other pilot shall don their oxygen mask for that period. After stowing the mask, how does one deactivate the mask microphone? PH 15.1.2

Press the PRESS TO TEST AND RESET pb to deactivate the mask microphone.

66. Should the flight crew discover a fuel imbalance in flight, what procedure should be followed? May this procedure be performed from memory? QRH 32

No - follow the QRH procedure:

- FUEL X FEED … ON
- CTR TK L+R XFR … OFF (A321)
- On the lighter side (if A319/320 … and in the center tank):
  - FUEL PUMPS … OFF
- When fuel is balanced:
  - FUEL PUMPS … ON
  - CTR TK L+R XFR … ON (A321)
  - FUEL X FEED … OFF

Do not apply this procedure if a fuel leak is suspected; accomplish "FUEL LEAK" procedure.

67. The least risk bomb location for the A320 is the _____. QRH 47

Center of the RH AFT cabin door.

68. While ECAM actions / non-normal checklists are being completed, the captain should assign the flying duties to the first officer unless conditions dictate otherwise (True or False). PH 21.1.4, FOM 7.2.5

Unless conditions dictate otherwise, the captain should assign the flying duties to the F/O in accordance with the FOM. This allows the captain to direct full attention to the accomplishment of the non-normal checklist and communications with external resources. The captain should verbalize if it is desired for the PF to temporarily handle ATC communications.

69. Sometimes it is appropriate to interrupt ECAM in order to place a higher priority on other tasks. Should it be necessary to stop ECAM actions for any reason, the PF will state: "HOLD ECAM". ECAM actions will continue when the PF states: "CONTINUE ECAM". PH 21.1.4

Descent

70. Wing anti ice should be selected ON in anticipation of icing conditions or if airframe icing is occurring. Normally, wing anti ice should be selected OFF at the FAF; however, in severe icing conditions, it may be left on for landing. In this case, when will the wing anti ice valves automatically close? PH 6.1.2

The wing anti-ice valves close automatically:

- Upon touchdown
- If a leak is detected, or
- If electrical power is lost

71. During the preliminary landing flow, the flight crew will evaluate the need for autobrakes during landing. In general, when should autobrakes be used? PH 3.12

When landing on a short or contaminated runway or when operating in low visibility, use the autobrake. The captain will determine the type and level of braking to use. The following is provided as selection criteria:

- OFF – To be used for bare and dry runways where landing distance is not a factor
- LO – To be used when moderate deceleration is required
- MED – to be used for contaminated runways or when landing distance is a factor
- MAX – <u>not</u> to be used for landing

72. What is the maximum landing weight for the A319, A320, and A321 aircraft? PH 2.2.2

Maximum Landing Weight	
A319	**137,800 lbs**
A320	**142,200 lbs**
A321	**171,500 lbs**

73. Should an A320 experience a GREEN & BLUE hydraulic failure, the QRH will direct the crew to multiply the landing distance CONFIG FULL by a factor of <u>1.5</u>. If the aircraft weighs 130,000 lbs., what is the required landing distance under the following conditions: airport elevation 20', dry runway, 5 knot headwind, CG 29.8%, and two reversers operative? QRH 51, A320 Perf-3

MULTIPLY LDG DIST CONFIG FULL BY 1.5
APPR SPD INCREMENT TO VREF (CONFIG FULL): 25

A320 – CONFIGURATION FULL, LANDING DISTANCE <u>WITHOUT</u> AUTOBRAKE

Actual Landing Distance, GW 130000, Dry: 2,920 feet
Elevation: No correction
Headwind: No correction
CG 29.8: No correction
2 reversers operative: -2% correction (-2% = 1.00 – 0.02 = 0.98)

Corrected landing distance = 2,920 X 1.5 X 0.98 = 4,292 feet

74. Assume that the KLGA weather is 31010G16KT 2SM OVC7 8/6 A2985, landing RWY 22 BRAF. What are the guidelines for operating with fair braking action and 16 knot crosswind gusts? QRH OD-3

Crosswind less than or equal to 15 knots for BRAF.

75. If the First Officer is a Low Time First Officer, is he permitted to land at KLGA if the weather is 31010KT 2SM 7OVC 8/6 A2985 landing RWY 22 with BRAF? FOM 4.14.7

No, Braking action must be GOOD (see question 39).

76. The Airbus A319/320 is designated an aircraft approach category <u>C</u> aircraft, whereas the A321 is designated an aircraft approach category <u>D</u> aircraft. FOM 5.10.3

77. What is the maximum 90° crosswind component (including gusts) for CAT II/III approaches? PH 2.3.1

Maximum Winds for Autoland	
Headwind	**30 knots**
Tailwind	**10 knots**
Crosswind other than CAT II/III	**20 knots**
Crosswind CAT II/III	**15 knots**

78. The flight crew is preparing for an approach to runway 36L at KCLT, and low visibility approaches are in progress. Due to a MEL, the aircraft capability is CAT 3 SINGLE. What type of autoland approach may be conducted? What number will be entered in the DH field on the PERF APPR page? QRH OD-2

- CAT IIIA
- 50 ft DH

79. Due to deteriorating weather at KLGA, the aircraft diverts to KEWR where the crosswind component for the landing runway is less than 15 knots. Can a "High Minimums" captain accomplish a CAT II approach to published CAT II minimums at KEWR? FOM 4.14.8

- CAT II – Yes (if approach coupler & autoland is used, and crosswind component is 15 knots or less)
- CAT III – No

Approach

80. If an EGPWS warning were activated while being vectored for an approach, what is the minimum altitude to which the aircraft should climb? FOM 4.10.16

- Within the terminal area – Highest Minimum Safe Altitude (MSA)
- On an airway – Minimum Enroute Altitude (MEA) or Minimum Obstruction Clearance Altitude (MOCA)
- Off airways (not within the terminal area) – Grid Minimum Off Route Altitude (Grid MORA)

81. Data shows that many flap overspeed events occur during the approach phase of flight when FLAPS 2 is selected. What is the maximum flaps / slats extended speed on the A319/320 and the A321 for FLAPS 2? PH 2.4.1

FLAPS	A319/320	A321
1	**230**	**235**
1+F	**215**	**225**
2	**200**	**215**
3	**185**	**195**
FULL	**177**	**190**

82. The Airbus A319/320/321 is equipped with a Low Energy Warning Function. The aural warning "SPEED, SPEED, SPEED" is triggered when the pilot needs to increase thrust in order to achieve a positive flight path. When is this protection available? PH 14.1.11

Low energy warning is available in CONF 2, 3, or FULL, between 100' and 2,000' AGL when TOGA not selected. Produces aural "SPEED SPEED SPEED" when change in flight path alone is insufficient to regain a positive flight path (Thrust must be increased). During deceleration, the low-energy warning is triggered before alpha-floor (unless alpha-floor is triggered by sidestick deflection).

83. The Airbus Reactive Windshear Detection function is available during takeoff from liftoff to 1,300 feet AGL, and on approach from 1.300 feet AGL to 50 feet AGL, when aircraft configuration is 1 or greater. PH 14.1.11

Reactive Windshear system: When a FAC detects windshear conditions, it triggers a warning:

- "WINDSHEAR" in red on both PFD's (for at least 15 seconds)
- An aural warning, "WINDSHEAR, WINDSHEAR, WINDSHEAR"

The **Predictive Windshear** system operates when the aircraft is below 1,500' AGL. It scans the airspace within 5 nm forward of the aircraft for windshears. When a windshear is detected, a warning, caution, or advisory message appears on the PFD and (depending on the range selected on the ND) an icon appears on the ND. Predictive windshear warning and caution are associated with an aural warning. During takeoff, both warnings and cautions are available within 3 nm. Alerts are inhibited above 100 knots and up to 50'. During landing, alerts are inhibited below 50'.

When the WINDSHEAR switch is in AUTO, the Predictive Windshear function is activated. Windshear areas are detected by the antenna scanning below 2,300' RA, even if the transceiver selector is set to OFF, and displayed on the ND if below 1,500'.

Predictive windshear aural alerts have priority over TCAS, EGPWS, and other FWC aural warnings. They are inhibited by windshear detection by FAC (Reactive) and stall warning aural messages.

REACTIVE WINDSHEAR (FAC)			
Alert Level	**Aural Warning**	**PFD**	**ND**
Warning	"WINDSHEAR, WINDSHEAR, WINDSHEAR"	WINDSHEAR (Red)	None
PREDICTIVE WINDSHEAR (RADAR)			
Alert Level	**Aural Warning**	**PFD**	**ND**
Warning (Approach)	"GO AROUND WINDSHEAR AHEAD"	W/S AHEAD (red)	Windshear icon
Warning (Takeoff)	"WINDSHEAR AHEAD" (twice)	W/S AHEAD (red)	
Caution	"MONITOR RADAR DISPLAY"	W/S AHEAD (amber)	
Advisory	Nil	Nil	

84. It is not uncommon to intercept the localizer and glideslope and be cleared for the ILS approach while still a considerable distance from the runway. When it is prudent to delay configuring the aircraft, the Alternate ILS Configuration will be used. At what point during the approach should the flaps and gear be extended? PH 18.6.6

Alternate ILS Configuration Technique	
Aircraft Distance with Reference to the Published Fix	**Accomplish the Procedures Associated with:**
3 nm	1½ dots (Gear Down)
2 nm	½ dot (Flaps 3)
1 nm	G/S Intercept (Flaps FULL)
• Configure the aircraft so as to arrive 3 nm prior to the published fix with FLAPS 2 • Distance is in relation to the published fix at the LOM, OM, or their equivalent (e.g. maltese cross) on the Jeppesen Approach Chart • Applicable to ILS approaches only, not RNAV approaches	

85. While conducting an RNAV approach, the autopilot and flight director must be used; however, a manually flown RNAV approach is permitted if _____. PH 18.6.12

- IFR: AP and FD must be used. If both Autopilots have failed, and no ILS approach is available, a manually flown FD RNAV approach is permitted.
- Weather ≥ 1000 and 3: A manually flown FD RNAV approach is permitted.

86. The minimum height for autopilot disengagement during an RNAV approach is _DA_. PH 2.13.1

Note: When FINAL APP NAV modes are engaged, the AP will disengage at DA – 50' (if entered) or 400' AGL if no DA was entered. The FDs will revert to basic modes (HDG, V/S).

87. During an ASR approach, if the published MDA is 480', what value should be placed in the PERF APPR MDA field in the MCDU and also used as an "adjusted" MDA? PH 18.6.14

When the published MDA is not a multiple of 100, round it up to the next 100' *(e.g., 810' is rounded up to 900').* Set this adjusted MDA in the FCU and use this adjusted MDA for the minimum descent altitude. When an intermediate step-down altitude(s) is designated, set the FCU to the step-down altitude(s), then to the adjusted MDA.

88. Upon reaching the descent point on an ASR approach, the flight crew should use what vertical mode to begin the descent to the MDA? PH 2.13.2

VERT/SPEED – The use of OPEN DES is prohibited inside the FAF, or below 1000' AGL during a visual approach.

89. The FOM establishes stabilized approach criteria with reference altitudes for IMC (1000' AFE) and VMC (500' AFE) conditions. If these flight parameters cannot be maintained, a go around must be initiated. What parameters define a stabilized approach? FOM 5.10.10

Rate of Descent
- By 1,000' AFE, the descent rate is transitioning to no greater than 1,000 fpm.

Flight Parameters – Below 1,000' AFE (IMC) or 500' AFE (VMC), the aircraft is:
- On a proper flight path (visual or electronic) with only small changes in pitch and heading required to maintain that path,
- At a speed no less than V_{REF} and not greater than V_{REF} + 20 (except when generated by Airbus FMGC) allowing for transitory conditions with engines spooled up,
- In trim, and
- In an approved landing configuration

Execute a go-around when the rate of descent is excessive or the flight parameters can <u>not</u> be maintained.

90. With the speedbrakes extended, what action will occur should the pilot select TOGA thrust? PH 12.1.3

Speedbrake extension is inhibited if:
- SEC 1 and 3 have failed
- An elevator (L or R) has failed (only spoilers 3 and 4 are inhibited)
- Angle of attack protection is active
- Flaps are in configuration FULL (A319/320) or
- Flaps are in configuration 3 or FULL (A321)
- **Thrust levers are above MCT position**, or
- Alpha floor is active

If an inhibiting condition occurs, the speedbrakes retract automatically. To regain control of the speedbrakes, the inhibiting condition must be corrected and the SPEED BRAKE lever must be moved to the RET position for ten seconds.

91. During approach, the Autoland Warning Light is active below <u>200'</u> RA with the aircraft in the LAND mode. What action should the crew take if this light begins flashing during an autoland approach? PH 14.1.6

The following situations, when occurring below 200' RA with the aircraft in LAND mode, trigger the flashing AUTOLAND red warning, and a triple-click warning:

- Both APs OFF below 200' RA
- Excessive deviation in LOC (1/4 dot above 15' RA) or GLIDE (1 dot above 100' RA). In addition, LOC and GLIDE scales flash on the PFD.
- Loss of LOC signal (above 15' RA) or loss of GLIDE signal (above 100'). In addition, FD bars flash on the PFD. The LAND mode remains engaged.
- The difference between both radio altimeter indications is greater than 15'.

Go-Around is mandatory during a CAT II/III approach if AUTO LAND caution light illuminates during the approach.

Landing/Go-Around

92. During a visual approach, if the flight director commands will not be followed, the flight directors should be turned OFF. Should the crew need to execute a go around, the flight directors will provide go-around guidance in SRS/GA TRK modes as soon as the thrust levers are placed in the TOGA detent (True or False). PH 18.6.20

True. When the thrust levers are advanced to TOGA:

- FD bars provide go-around guidance. If FPV was on or FD switched off, FD bars are automatically restored in SRS/GA TRK modes.
- The FMA displays "SRS" and "GA TRK" in green.

93. The thrust levers may be retarded to the CL detent during a go around when TOGA thrust is not required. This would be accomplished only after verifying that _____ is annunciated on the FMA. PH 18.6.20

MAN TOGA | SRS | GA TRK

94. During landing, as part of his scan, the PM will monitor the pitch attitude on the PFD and call "PITCH" if the pitch attitude reaches _10°_ (A319/320), or _7.5°_ (A321). PH 18.7.1

Do not smack the tail.

95. The QRH contains a checklist for loss of all braking. Assume that the aircraft is on the landing rollout, autobrakes have not been used, and there is no response after depressing the brake pedals. What pilot actions are required? QRH 3

IF AUTOBRAKE IS SELECTED:

- BRAKE PEDALS … PRESS

IF NO BRAKING AVAILABLE:

- REV … MAX
- BRAKE PEDALS … RELEASE
- A/SKID & N/W STRG … OFF
- BRAKE PEDALS … PRESS
- MAX BRK PR … 1000 PSI

IF STILL NO BRAKING:

- PARKING BRAKE … SHORT AND SUCCESSIVE APPLICATION

Taxi–in/Parking

96. The In-Range message shows that external power and air are available at the gate. The anticipated gate time is 45 minutes. Should the crew start the APU during arrival? FOM 5.12.8

When the In-Range message indicates external air and power are available, they will be hooked up. If external power is available but external air is not, only start the APU if necessary for passenger comfort.

When arriving at the gate with the APU operating, ensure the APU Bleed is turned off prior to conditioned air connection.

97. The residual ground speed check (ADIRS) on the Parking Checklist requires a report in the ME-100 if the groundspeed is greater than or equal to _15_ knots (the excessive deviation must be confirmed after two consecutive flights). If the groundspeed is greater than or equal to _21_ knots, the IRU must be removed. PH 3.16

Note: The groundspeed check must be performed within the two minutes following aircraft stop (Groundspeed resets to zero after two minutes).

98. Prior to selecting ADIRS … OFF during the Securing Checklist, the flight crew should _____. PH 3.16

Wait at least 3 minutes after the aircraft comes to a complete stop.

99. Prior to selecting BATTERIES … OFF during the Securing Checklist, the flight crew should wait ___. PH 3.16

Wait until the APU flap is fully closed (about two minutes after APU AVAIL light extinguishes) before switching the batteries OFF.

Note: APU Flap closing may be verified on the APU ECAM page.

100. Opening a cabin entry/service door from the outside with the escape slides armed will _____. PH 5.21.1

Each door is equipped with a single lane escape slide or slide-raft. A slide-arming lever connects the slide to the floor brackets when in the ARMED position. If the door is opened from the inside while the slide is armed, the door is pneumatically assisted and the slide will inflate and deploy automatically. The slide may be inflated manually if auto mode fails. Opening the door from outside disarms the door and slide.

ADDITIONAL MEMORY LIMITATIONS

OPERATION LIMITS

Structural Weight Limits	A319	A320	A321
Maximum Takeoff	**166,400 LBS**	**169,700 LBS**	**205,000 LBS**
Maximum Landing	**137,800 LBS**	**142,200 LBS**	**171,500 LBS**

Maximum 90 degree crosswind component (including gusts) for takeoff and landing: **29 knots**
Maximum 90 degree crosswind component (including gusts) for CAT II/III approaches: **15 knots**
Limiting tailwind component for takeoff and landing: **10 knots**
Maximum operating altitude: **39,000 feet**

SPEED LIMITS

Maximum operating airspeed (V_{MO}): **350 KIAS**
Maximum operating mach number (M_{MO}): **0.82M**
Maximum gear extension speed (V_{LO}): **250 KIAS**
Maximum gear retraction speed (V_{LO}): **220 KIAS**
Maximum gear extended speed (V_{LE}): **280 KIAS/0.67M**

Maximum Flaps/Slats Extended Speeds (V_{FE})					
FLAPS	1	1+F	2	3	4
A319/320 V_{FE}	**230 KIAS**	**215 KIAS**	**200 KIAS**	**185 KIAS**	**177 KIAS**
A321 V_{FE}	**235 KIAS**	**225 KIAS**	**215 KIAS**	**195 KIAS**	**190 KIAS**

Turbulence Penetration Speeds	A319/320	A321
At or above 20,000 feet	275 KIAS/.76M	300 KIAS/.76M
Below 20,000 feet	250 KIAS	270 KIAS

ICE & RAIN PROTECTION

Engine Anti-ice ON when OAT (Ground) / TAT (Flight): **10 degrees C or below**
(except during climb and cruise when the temperature is below –40 degrees C SAT)

Engine anti-ice must be ON prior to and during descent in icing conditions
(including temperatures below –40 degrees C SAT)

FUEL

Usable Fuel Tank Quantity		
	A319/320	A321
Wing Tanks	27,500 lb	27,500 lb
Center Tank	14,500 lb	14,500 lb
ACT	-	10,500 lb
TOTAL	**42,000 lb**	**52,500 lb**

Maximum allowable fuel imbalance between left and right wing tanks (outer + inner): **1,000 lbs**

HYDRAULICS, BRAKES, & LANDING GEAR

Maximum landing gear extension altitude: **25,000 feet**

FLIGHT CONTROLS

Maximum operating altitude with slats, or flaps and slats extended: **20,000 feet**

AUTO FLIGHT SYSTEM

Autopilot Engaged – Minimum Height: **100 feet AGL** After Takeoff (if SRS is indicated)

Maximum Winds for Automatic Approach, Landing, and Rollout	
Headwind	**30 knots**
Tailwind	**10 knots**
Crosswind other than CAT II/III	**20 knots**

POWERPLANT

Minimum oil quantity for dispatch: 12.5 quarts

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