AIRBUS

BEING PREPARED TO THE NEW CHECKLISTS

This document aims at helping Operators for the entry into service of the forthcoming checklists and associated SOP changes. It gives a global overview of the changes.
For the details, refer to the other documents published with the FOT.

Note: As a reminder, Airbus refers to Checklist for normal operations and Procedures for abnormal operations. Accordingly in this document, the use of the word "checklist" refers to normal operations

Revised parts of this document (issue 2) are highlighted in yellow

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1. COMMUNICATIONS TO OPERATORS

Airbus started to communicate on this project during the Flight Operational Conference in Montreal in May 2018 (available on AirbusWorld).

AIRBUS FOT 999.0070/19 "Forthcoming SOP, FCTM and Normal Checklist changes" was sent in October 2019.

Presentations were also done in the operational Seminars in October, November and December 2019.

AIRBUS FOT 999.0070/19 "Forthcoming SOP, FCTM and checklist changes" was updated in December 2019 to invite operators to webinars and provides some material to help Operators prepare the implementation of the forthcoming new checklists initially scheduled for end of 2020.

AIRBUS FOT 999.0032/20 Rev 00 dated 02-APR-2020 AIRBUS FLIGHT OPERATIONS SUPPORT # COVID 19 to postpone the implementation of the new checklists in order to offer more flexibility to operators for related crew briefing and training.

AIRBUS FOT 999.0070/20 Rev 00 dated 08-OCT-2020 FLIGHT OPERATIONS SUPPORT DURING COVID 19 PERIOD to provide the new date for implementation of the new checklists in the Ops documentation:

- July 2021 for A350, with the planned Batch 7 FWS standard implementation. Note that this date may change subject to the certification of the FWS standard.
- October 2021 for A380, with the Batch 7 FWS standard implementation. Note that this date may change subject to the certification of the FWS standard.
- November 2021 for A320 Family/A330/A340.

AIRBUS FOT 999.0088/20 Rev 00 dated 16 -DEC-2020 NEW CHECKLISTS, SOP UPDATE, NEW FLIGHT CREW BRIEFING POLICY to provide an update of the material that Airbus prepared so that the Operators can prepare their own training. Few updates have been introduced thanks to customer's feedbacks, mainly in the SOP to further harmonize between the A30/A30/A340/A350/A380 fleets.

2. MATERIAL

A set of documents, provides detailed information on the forthcoming checklists and the main associated changes in the operational manuals:

- Changes in the Checklists, SOPs, and FCTM (advance data not customized to the different aircraft configurations)
- A comparison for each checklist between the actual and the forthcoming checklist with the rationales for each change
- The analysis of the current checklists and the justification for the changes.

All these documents are available in AirbusWorld in the Conferences and forums section here:

Any update of these documents or new documents will be published in AirbusWorld at the same place.

3. WHY A NEED TO CHANGE THE CURRENT CHECKLISTS?

Based on:

- Aviation community studies on the checklist content
- Feedback from Operators
- Internal Airbus studies

Airbus identified that the current checklists could be enhanced, both in their structure and number, and also in their content.

Therefore, in 2018 Airbus initiated a review of the current Checklists with a selection of Operators, who candidate to this initiative, and representative of various operation types, from short range to long haul flight, covering all Airbus Fly By Wire types. As a result of this review, Airbus and these Operators identified that enhanced Checklist will ease aircraft operations. New checklists were drafted and checked both in simulators and real operations. The new checklists demonstrated a significant enhancement compared to current checklists, addressing better the real operational needs.

The main advantages of the changes in the checklist are the following:
- Shorter checklists that limit the risk of interruption of the checklist
- Checklists stick to the real flight phases (Less ambiguity whether a checklist is started or completed)
- Reduced work load in dynamic flight phases
- Easy concept for Airbus newcomer (No longer concept of "down to the line", "below the line" checklists)

4. OBJECTIVE AND RULES OF THE AIRBUS CHECKLISTS

The objective of the Airbus checklists has always been to confirm key steps after completion of the SOP flow actions of the current flight phase. The checklists enhance flight safety because they provide an additional opportunity to confirm or correct the systems and aircraft configuration for critical items.

The new checklists will remain designed with this overall objective.

The checklists were reviewed and will be updated taking into account the following considerations:

- The SOPs items checked by the checklist lines are actions that may lead to the following risks if they are omitted while no other mitigation is existing:
  - People injury,
  - Aircraft damage, or
  - Severe operational disruption.

- The completion of checklists is paramount to guarantee safe operation throughout the flight. This is particularly true for checklists before takeoff, approach and landing phases.

- As per the Airbus cockpit philosophy, the checklists are not read-and-do lists. They should be accomplished after performing the corresponding flow of actions defined in the SOPs.

- The use of Airbus checklists remains unchanged with this checklist update. The flight crews must be aware of this new set of checklists, nevertheless, transition from current to new

checklists is within a limited training effort for pilots already trained and experienced on Airbus aircraft.

● The new checklists rely on the same Crew Resource Management (CRM) and interrelated skills between crew members.

● The Items of the checklists must be listed by order of criticality.

● Must be short and concise, and avoid ambiguity in the answer (removal of AS RQRD wording in checklists)

● Reinforce the commonality between Airbus Fly-By-Wire fleet, with only limited differences induced by the design of each individual type.

● Take benefit of aircraft system mitigation means that inform or alert the flight crew when an SOP action is not done.

5. CHANGES IN CHECKLISTS AND RATIONALES

Based on the above mentioned considerations Airbus identified a need to implement the following changes in the checklists.

5.1. SUMMARY OF THE MAIN CHECKLIST CHANGES AND ASSOCIATED SOPS CHANGES

Preliminary Cockpit Preparation	- The flight crew prepares the NAV Chart Clipboard before the Preliminary Takeoff Perf Data computation.
Cockpit Preparation	- A COCKPIT PREPARATION checklist replaces the BEFORE START checklist down to the line. - The COCKPIT PREPARATION checklist is performed after the briefing.
Before Pushback or Start	- There are additional BEFORE START Flow Pattern and Checklist. - The BEFORE START checklist replaces the BEFORE START checklist below the line.
Engine Start	- The AFTER START checklist is modified.
Taxi	- On A320, A330 and A340, the TAXI flow is updated. - The TAXI checklist replaces the BEFORE TAKEOFF checklist down to the line.

Before Takeoff	- There is an additional LINE UP Flow Pattern. - The LINE UP checklist replaces the BEFORE TAKEOFF checklist below the line.
Departure Change	- A new checklist is created to be applied in the event of a last minute change after the flight crew has completed the preparation of the flight.
After Takeoff	- The AFTER TAKEOFF checklist is removed. - There is an additional ACCELERATION Flow Pattern replacing the AFTER TAKEOFF checklist. - In the FCTM, the "HANDLING OF ECAM/QRH/OEB PROCEDURE" chapter is updated accordingly
Approach	- The APPROACH checklist is modified.
Landing	- The LANDING checklist is modified.
Go-Around	- The AFTER TAKEOFF checklist is removed. - There is an additional ACCELERATION Flow Pattern replacing the AFTER TAKEOFF checklist. - In the FCTM, the "HANDLING OF ECAM/QRH/OEB PROCEDURE" chapter is updated accordingly.
After Landing	- On A350 and A380, the AFTER LANDING checklist is removed. - On A320, A330 and A340, the AFTER LANDING checklist is modified.
Parking	- There is an additional PARKING Flow Pattern. - The PARKING checklist is modified.
Securing the Aircraft	- The SECURING THE AIRCRAFT checklist is modified.

Airbus performed an assessment of the level of training required for the new checklists. The recommended minimum Training is aided instruction.

No ODR table will be issued as the checklist changes are relative to non-approved operational data and not relative to aircraft design change.

5.2. ANALYSIS OF CURRENT CHECKLISTS AND REASON FOR CHANGES

Refer the document: A320-A330-A340-A350-A380 Checklist Risk Analysis.pdf

This document:
● Identifies the level of risks on the flight if the flight crew forgets to perform an SOP action.
● Identifies the aircraft system mitigation means to alert the flight crew should an SOP action line checked by the current checklist is not done
● Justifies the reason for the changes, when any.

As example, here is an extract relative to the BEFORE START checklist :

AIRBUS	Risks			Mitigations						Wording & Homogeneity					Info	Decision for C/L line				Decisions and Justifications
	PEOPLE INJURY (≥ MAJ)	A/C DAMAGE (MIN)	SEVERE OPERATIONAL DISRUPTION (NSE)	ECAM ALERT/MEMO	FMS MESSAGE	PFD MESSAGE	MULTIPLE XCHECKS IN SOPS	BASIC PILOT COMPETENCIES	EXTERNAL PARTS	CHALLENGE UNCLEAR	RESPONSE TOO VAGUE	QUESTIONABLE LOCATION	WORDING/LOCATION DIFFERENT / PROGRAMS	LINE NOT ON ALL PROGRAMS	LINE DELETED BY SOME OPERATORS	Kept	Deleted	Adapted	Moved	
BEFORE START																				
COCKPIT PREP...COMPLETED (BOTH)		X						X			X				X		X			The risk is difficult to assess because the cockpit preparation re-groups several actions that have different impacts. **Decision:** The line is deleted because it does not help remind that something has been forgotten.
GEAR PINS and COVERS...REMOVED		X							X (not always)							X A320 A330 A340		X A350 A380		Only the flight crew can ensure that the gear pins and covers are on board. Ground personnel cannot be considered as a mitigation means **Decision:** - Line is kept - Wording changed on A350/A380 from "REMOVE" to "REMOVED" as the action is done.
SIGNS...ON/AUTO	X			X				X				X						X		The purser will most probably see the omission but too late. No MEMO is displayed if the SEAT BELT switch is OFF. SIGNS (or SEAT BELTS) is available on T.O memo, but it appears too late for taxi. **Decision:** Line replaced by "SEAT BELTS..... ON", as only the seat belts item is considered as critical. No critical impact if other signs are forgotten
ADIRS...NAV		X		X partly						X	X	X				X A320 A330 A340		X A350 A380		- NAV IR NOT ALIGNED alert (+memo) . Alert not on all A320 On A320/A330/A340/A350/A380; IRS IN ALIGN X MN memo except on some A320 for which IRS IN ALIGN is displayed with no time indication MAP NOT AVAIL (very visible) on all aircraft until 2-3 minutes of full alignment If one IRS fails to align, it is not possible to detect it except on FMS IRS page. Operational Disruption = time loss 10-20 minutes delay max **Decision:**

5.3. CHECKLISTS COMPARISON

Refer to the documents that compare the current checklists with the new ones and provides the main rationales for each change.
A320-A330-A340 Current vs New Checklists Comparison.pdf
A350-A380 Current vs New Checklists Comparison.pdf

As example, below is the comparison of the BEFORE START checklist ("down to the line" and "below the line") with the new COCKPIT PREPARATION and BEFORE START checklists:

CHECKLIST COMPARISON - BEFORE START

Current A320/A330/A340 normal checklist	A320/A330/A340 Normal Checklist after November 2020

6. SOP AND TASKSHARING CHANGES ASSOCIATED WITH CHECKLISTS CHANGES

Refer to the documents:
A320 SOP for new checklists.pdf
A330-A340 SOP new checklists.pdf
A350 SOP for new checklists.pdf
A380 SOP for new checklists.pdf
A320 Tasksharing for new Checklists.pdf
A330-A340 Tasksharing for new checklists.pdf
A350 Tasksharing for new Checklists.pdf
A380 Tasksharing for new Checklists.pdf

These documents reflect the SOP and task sharing changes associated with the checklists changes and flight crew briefing changes. The changes are highlighted in yellow.

In addition for the A320 Family/A330/A340 the task sharing also identifies the changes associated with the SOP convergence with other aircraft types. These changes are highlighted in blue.

These SOPs are not tailored to the aircraft and therefore may not correspond to the options installed on the aircraft.

7. OPERATOR'S CUSTOMIZATION

The set of checklists provided by Airbus:

- Relies on the full application of the Airbus SOPs. Each individual Operator may customize the SOPs and associated checklists to its particular needs. For any deviation from the Airbus SOPs, the Operator should assess the impact on the checklists.

- Reminding the intent of each individual line of the new checklists. Airbus recommends to conduct a Risk Assessment before amending the Airbus proposed content.

The Operator may amend checklist lines to deal with specific operational constraints, specific risks, or specific local requirements. Lines may be moved from a checklist to another or within the same checklist provided a structured change process is applied.

8. INITIATING A CHECKLIST

Airbus will clarify specific events triggering each individual checklist. The triggers will be part of the Flight Crew Techniques Manual (FCTM).

A trigger for initiating a checklist should be:

- Robust to the context (i.e. systematically present, whatever the context)

- Precise (i.e. clearly linked and referred to a cockpit action, a cockpit effect)

- Located just before the checklist call or just before the corresponding flow when applicable (e.g. last actions of SOP for instance to prevent from forgetting, from deferring the checklist call or being interrupted by other actions/communications)

- One item recommended, or a maximum of two items, to be easily associated in memory and recalled. For instance -T.O SPEEDS & THRUST…..___(BOTH) are two items.

Upon each checklist trigger, the PF should call for the related checklist in a timely manner during reduced-workload periods to prevent any rush or interruption that could defeat the safety purpose of the checklists. The Pilot Monitoring (PM) reads the related checklist.

The triggers will be as follows:

Checklist	Trigger
Cockpit Preparation	T.O briefing completed
Before Start	● Pushback clearance or Start clearance received, and ● Before Start flow pattern completed.
After Start	On hand signal from the ground personnel.
Taxi	T.O CONFIG pb pressed and cabin report received
Line-Up	● Line-up clearance received, and ● Before Takeoff flow pattern completed.
<< Departure Change >>	Revised takeoff briefing completed
Approach	Below 10.000 feet AAL and barometric reference set
Landing	LDG CONF set and cabin report received
After landing (A320, A330 and A340 families only)	● Runway vacated, and ● After landing flow pattern completed.
Parking	SEAT BELTS sw OFF
Securing the Aircraft	After the last passenger left the aircraft (if securing the aircraft is intended)

8.1. CHECK TECHNIQUES

The check techniques will be provided in the Flight Crew Techniques Manual.

Refer to the documents:
320-A330-A340 FCTM for new checklists.pdf
A350-A380 FCTM for new checklists.pdf

See below an extract for A320/A330/A340:

AIRBUS *A320/A330/A340* **FLIGHT CREW TECHNIQUES MANUAL**	**PROCEDURES** **NORMAL PROCEDURES** **NORMAL CHECKLISTS**

COCKPIT PREPARATION

Checklist trigger: T.O briefing completed.

GEAR PINS & COVERS..REMOVED
The PF confirms that the gear pins and covers were checked removed (e.g. during the walkaround).
The PF announces "REMOVED".

FUEL QUANTITY .... ____ KG
The PF checks the FOB and fuel distribution on the FUEL SD page, and compares with the computerized flight plan.
└ *The PF announces e.g. "Fifteen thousand three hundred thirty kilograms balanced".*

SEAT BELT ....ON
The PF checks the memo
The PF announces "ON".

ADIRS..NAV
The PF checks on the MCDU that the ADIRS are on NAV.
The PF announces "NAV".

BARO REF ...._____ (BOTH)

9. PARTICULARITY OF THE DEPARTURE CHANGE CHECKLIST

9.1. GENERAL

The DEPARTURE CHANGE checklist is introduced to cover the specific case where a last minute change occurs while the crew has completed the preparation of the flight.

The DEPARTURE CHANGE checklist has to be considered from the end of the takeoff briefing (end of the Cockpit Preparation SOP) up to the takeoff.
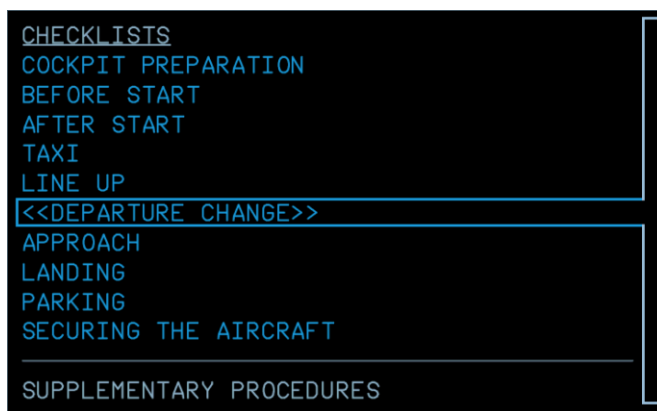
The DEPARTURE CHANGE checklist is designed to protect the flight crew against erroneous setting (FMS, CONF…) and/or computations after a change in the departure clearance.

The flight crew should perform the DEPARTURE CHANGE checklist when a new departure clearance is received that changes the runway, the lineup option, the performance or the trajectory. The checklist should not be performed for short term changes (e.g. modification of the clearance altitude leading the FCU altitude change).

The DEPARTURE CHANGE checklist should be called as many times as changes occur.

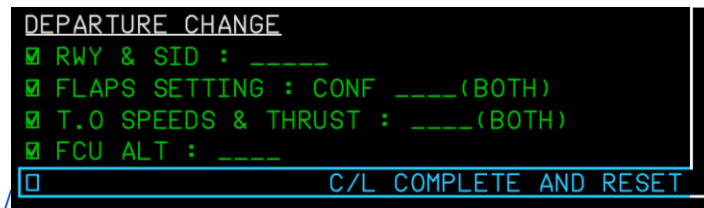### 9.2. A350 & A380: MECHANIZATION OF THE DEPARTURE CHANGE CHECKLIST

As it is an optional checklist, the DEPARTURE CHANGE checklist is displayed below the LINEUP checklist.

```
CHECKLISTS
COCKPIT PREPARATION
BEFORE START
AFTER START
TAXI
LINE UP
<<DEPARTURE CHANGE>>
APPROACH
LANDING
PARKING
SECURING THE AIRCRAFT

SUPPLEMENTARY PROCEDURES
```

The flight crew at discretion scrolled down to apply the checklist.
As this checklist can be done as many times as necessary, e.g. following multiple clearances changes,:

- This checklist has to be reset after each completion. The last line of the checklist is "CHECKLIST COMPLETE AND RESET"

- The checklist will always stays blue all the time; no grey « completed » status.

- When the checklist is completed, the callout of the PM stays the same (i.e. "DEPARTURE CHANGE CHECKLIST COMPLETED").

```
DEPARTURE CHANGE
☑ RWY & SID : _____
☑ FLAPS SETTING : CONF ____(BOTH)
☑ T.O SPEEDS & THRUST : ____(BOTH)
☑ FCU ALT : ____
☐                      C/L COMPLETE AND RESET
```

As it becomes useless in flight ,the DEPARTURE CHANGE checklist disappears after lift-off.
The DEPARTURE CHANGE checklist cannot be displayed in flight.

It will appear again after the automatic reset of the checklist (last engine master off), for the next flight.

Before takeoff:

After takeoff:

After a rejected takeoff or in the case of "STOP AND GO" technique, the DEPARTURE CHANGE checklist is displayed again after the reset of any subsequent checklist (as per SOP, the flight crew should reset and perform the AFTER START checklist).

9.3. DEPARTURE CHANGE CHECKLIST ON EQRH

The departure change is placed as the last checklist before airborne (as on A350 and A380)
The Operator can change on the eQRH the position of DEPARTURE CHANGE checklist.

To identify that the DEPARTURE CHANGE checklist is not to be applied systematically, it is for the time being, boxed in white dashes. It will be harmonized with the A350/A380 ECAM display for the Entry Into Service end of 2020 with this symbology: << DEPARTURE CHANGE >>

ABN	SOP	OPS	OEB	C/L

NCL - Normal Checklist

COCKPIT PREPARATION

BEFORE START

AFTER START

TAXI

LINE-UP

DEPARTURE CHANGE

APPROACH

LANDING

AFTER LANDING

PARKING

SECURING THE AIRCRAFT

TAKEOFF
CG/TRIM
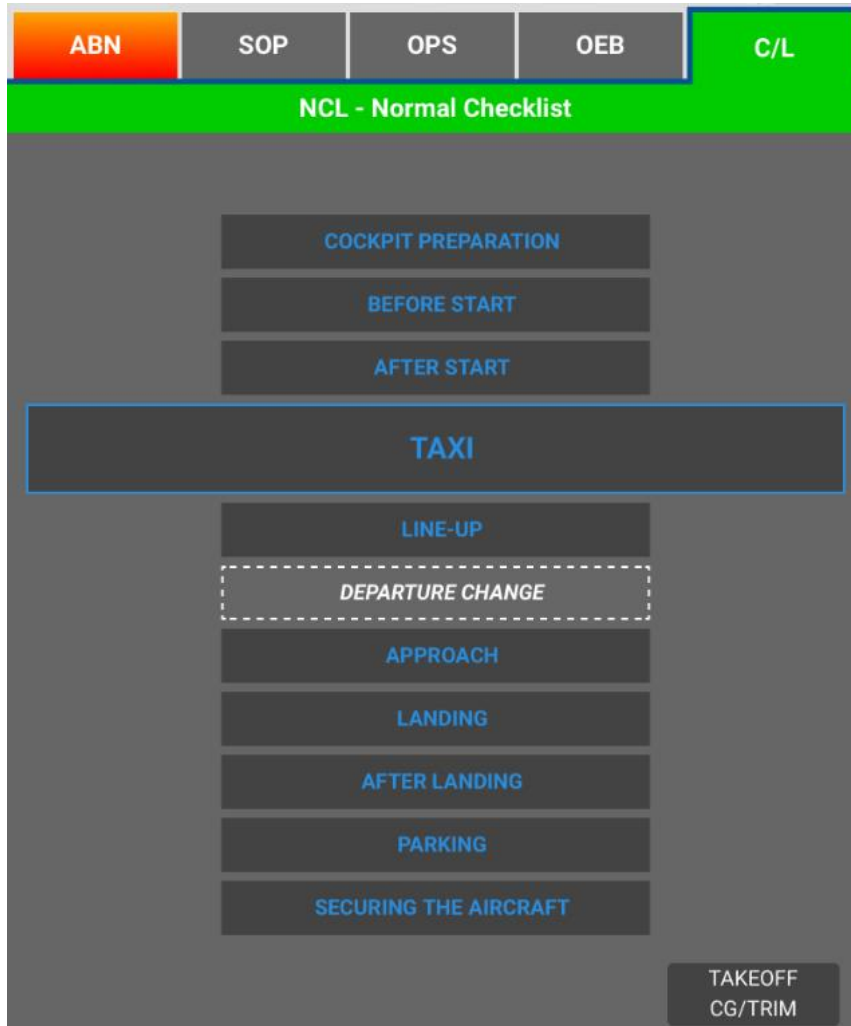
10.   DEPLOYMENT ON AIRCRAFT FITTED WITH ECAM CHECKLIST: A350/A380 FLEETS

10.1. ECAM CHECKLISTS ON AIRCRAFT

The new checklists will be implemented linefit or by retrofit in FWS with the embodiment of A350 batch 7 (FWS S7) and A380 batch 7 (FWS L70) expected Q4 2021.

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10.2. ECAM CHECKLISTS ON SIMULATOR

The training effort to prepare flight crews is limited to self-study.
However, should Operators wish to install the new checklists on simulator, Airbus has delivered an OCED load with the new checklists. The OCED load and a HOW TO are available on AirbusWorld since JAN 2020.

2 possibilities :
● The Operators can request their simulator provider to install the load (if no Operator customization), or
● The Operator can customize the load that Airbus has delivered and provide it to their simulator provider as usual.

11.   DEPLOYMENT FOR OPERATORS USING EQRH: A320/A330/A340 FLEETS

The full set of the new checklists will be included in the normal revision Airbus will deliver starting from November 2021 (depending on each Operator's revision planning).

In the meantime Airbus intends to deliver (Q1 2021) a generic eQRH demo load providing the normal checklists and the associated tasksharing. The aim is to help Operators preparing briefings to their flight crews.
NAVBLUE will dispatch this demo eQRH load with associated installation recommendations.

12. DEPLOYMENT FOR OPERATORS USING PAPER QRH: A320/A330/A340 FLEETS

A generic (not customized) QRH in pdf is part of the documents provided on AirbusWorld.

See A320 example below:

FOR INFORMATION ONLY - DO NOT USE FOR OPERATIONAL PURPOSE

AIRBUS A318/A319/A320/A321 QUICK REFERENCE HANDBOOK	**NORMAL CHECKLIST**	**C3** 25 NOV 19

COCKPIT PREPARATION
GEAR PINS & COVERS.................REMOVED
FUEL QUANTITY......................._____KG/LB
SEAT BELTS......................................ON
ADIRS...NAV
BARO REF................................_____ (BOTH)

BEFORE START
PARKING BRAKE..............................._____
T.O SPEEDS & THRUST.........._____ (BOTH)
WINDOWS.......................CLOSED (BOTH)
BEACON...ON

AFTER START
ANTI ICE......................................._____
ECAM STATUS........................CHECKED
PITCH TRIM............................._____%
RUDDER TRIM......................NEUTRAL

TAXI
FLIGHT CONTROL....... CHECKED (BOTH)
FLAP SETTING...........CONF_____(BOTH)
RADAR & PRED W/S.................ON & AUTO
ENG MODE SEL..............................._____
ECAM MEMO........................... TO NO BLUE
- AUTO BRK MAX
- SIGNS ON
- CABIN READY ( )
- SPLRS ARM
- FLAPS TO
- TO CONFIG NORM

LINE-UP
T.O RWY.................................._____(BOTH)
TCAS.. _____
PACKS 1 & 2.................................. _____

<< DEPARTURE CHANGE >>
RWY & SID................................._____
FLAP SETTING...........CONF_____(BOTH)
T.O SPEEDS & THRUST........._____ (BOTH)
FCU ALT......................................._____

APPROACH
BARO REF.................. _____SET (BOTH)
SEAT BELTS......................................ON
MINIMUM.. _____
AUTO BRAKE................................. _____
ENG MODE SEL...........................AS RQRD

LANDING
ECAM MEMO.......................LDG NO BLUE
- LDG GEAR DN
- SIGNS ON
- CABIN READY ( )
- SPLRS ARM
- FLAPS SET

AFTER LANDING
RADAR & PRED W/S............................. OFF

PARKING
PARK BRK or CHOCKS........................SET
ENGINES.......................................OFF
WING LIGHTS...................................OFF
FUEL PUMPS...................................OFF

SECURING THE AIRCRAFT
OXYGEN..OFF
EMER EXIT LT...................................OFF
EFBs... OFF
BATTERIES.................................... OFF

TAKEOFF CG/TRIM POS