<table>
<tr><th colspan="3">Airbus Arrival Automation Flows and Briefing</th></tr>
<tr><td colspan="3">Updated 6/30/21</td></tr>
<tr><th colspan="3">Automation Flows</th></tr>
<tr><td rowspan="4">MCDU
Reverse"Z"</td><td>F-PLN</td><td>• Re-do if Return or Divert (2L lateral revision)
• Select ARRIVAL page, enter RWY, APPR, STAR, TRANS, and APPR VIA
• Arrival Verification
• Clean up flight plan with FAF as "TO" Waypoint</td></tr>
<tr><td>RAD
NAV</td><td>• VOR: Check for proper NAVAID tuning, either auto or manual.</td></tr>
<tr><td>PROG</td><td>• Insert runway under 4R for situational awareness
• If RNAV approach (<u>NOT</u> VOR):
- 0.3 RNP for RNAV (GPS)
- Required RNP for RNAV (RNP)
- GPS PRIMARY or NAV ACCURACY HIGH must be present on both PROG pages (may be confirmed on ND)</td></tr>
<tr><td>PERF
APPR</td><td>• Activate / Confirm Approach
(when in SELECTED SPEED Mode, ask other pilot)
• Enter Landing Data
QNH, Temp, MAG WIND
V_{APP} (if required)
DH/MDA (DH/DA - CAT II/III, DA/DDA - CAT I, RNAV, VOR)
LDG CONF (GPWS LDG FLAP 3 pb OFF if required)</td></tr>
<tr><td>DATA X2
(If RNAV)</td><td>• Deselect RADIONAV (POSITION MONITOR (1L)
• GPS MONITOR (POSITION MONITOR (1L) – Ensure GPS in NAV mode</td></tr>
<tr><td colspan="3">• ILS pb (if ILS/LOC Approach) / PM VOR sel switch to VOR (if VOR Approach); CSTR pb ON</td></tr>
<tr><td colspan="3">• Seat Belt Sign - ON</td></tr>
<tr><td colspan="3">• GPWS LDG FLAP 3 pb OFF (if required)</td></tr>
<tr><td colspan="3">• Set AUTO BRK (if desired)</td></tr>
<tr><td colspan="3">• Check ECAM memos, status, and cabin rate of descent</td></tr>
<tr><td colspan="3">• Changeover Report</td></tr>
<tr><th colspan="3">Arrival Briefing</th></tr>
<tr><td colspan="3">Refer to Normal Checklist Arrival Briefing and OD pages for applicable approach</td></tr>
<tr><td>Threats
(PM then PF)</td><td>Relevant threats/concerns see:
• Potential threats
• Ops Advisory pages (##-7)</td><td></td></tr>
<tr><td>STAR/
Approach
Chart</td><td>Use FMS and electronic displays when applicable and ensure Arrival Verification accomplished.
• FMS: Arrival, transition, approach name: (ensure NO VIA unless required)
- Top of descent point
- First published altitude constraint</td><td>Approach:
Day VMC visual approach identify the:
• Landing runway
• Backup approach
IMC approach or night VMC visual approach:
• Airport, approach name, page #
• Briefing strip information
• Weather minima</td></tr>
<tr><td>PFD</td><td colspan="2">• Primary navaid Frequency *
• Final approach course *
• DA (DH), AH, or DDA/MAP *</td></tr>
<tr><td>F-PLN page</td><td colspan="2">• Final approach verification altitude *
• Missed approach *</td></tr>
<tr><td>All
Approaches</td><td colspan="2">Landing/taxi:
• Landing performance assessment
• Flaps
• Autobrakes
• Runway turnoff
• Planned route (including hot spots/runway crossings</td></tr>
<tr><td colspan="3">* Instrument approach or night VMC visual approach</td></tr>
<tr><th colspan="3">Descent - Approach Checklist</th></tr>
</table>

Takeoff to Flap Retraction	
PF	**PM**
Commencing takeoff roll	
• Advance thrust levers to approximately 50% N_1 (CFM) or 1.05 EPR (IAE) • Advance thrust levers to FLX or TOGA • Check **MAN FLX** or **MAN TOGA** on FMA	
"FLEX" or "TOGA"	• Verify takeoff thrust on E/WD
	"FLEX Set" or "TOGA Set"
• Captain assumes/maintains control of thrust levers	
80 kts	
	"80"
	• Check STBY airspeed
"Checked"	
V_1	
	"V_1"
• Captain removes hand from thrust levers	
V_R	
	"Rotate"
• Rotate at 3°/sec to 15°	
After liftoff	
	• Verify positive rate of climb on VSI
	"Positive Rate"
• Verify positive rate of climb	
"Gear Up"	
	"Gear UP"
• Maintain FD commanded attitude • Establish initial climb speed of not less than V_2+10 kts	• Position gear lever UP • Monitor speed and altitude
Above 100 ft AFL	
"Autopilot 1" or **"Autopilot 2"**, as appropriate	• Select autopilot ON, if requested
At or above 400 ft AFL	
Select/request **"Heading ____"**, if appropriate	• Select HDG, if requested
At the THR RED ALT (**LVR CLB** flashing)	
• Move thrust levers to the CL detent	
"Climb"	
• Verify **THR CLB** annunciations on FMA	
	"Climb Set"
At ACCEL ALT (SRS changes to **CLB** or **OP CLB**)	
• Follow FD commands to reduce pitch and accelerate	
F Speed (only displayed when flaps 2 or 3 were used for takeoff)	
• Check airspeed above **F** speed and accelerating	
"Flaps 1", if appropriate	
	Check airspeed above **F** speed and accelerating
	"Flaps 1", if requested
	Select FLAPS 1, if requested
S speed	
• Check airspeed above **S** speed and accelerating	
"Flaps Up, After Takeoff Checklist"	• Check airspeed above **S** speed and accelerating
• Monitor acceleration to appropriate speed	**"Flaps Up"**
	• Select FLAPS 0 • Disarm Spoilers • Accomplish After Takeoff Flow and Checklist
- End -	

Loss of Thrust at or Above V_1	
PF	**PM**
Engine fails at or above V_1	
• First pilot recognizing engine failure	
"Engine Failure"	
"My Aircraft"	
"TOGA", if desired	
• Advance thrust levers to TOGA, if desired	• Ensure thrust levers at TOGA, if requested
	"TOGA Set", if requested
V_R	
	"Rotate"
• Rotate at 3°/sec to 12.5°	
After liftoff	
	• Verify positive rate of climb on VSI
	"Positive Rate"
• Verify positive rate of climb	
"Gear Up"	
• Maintain FD commanded attitude • Trim rudder to maintain a centered β target	**"Gear Up"** • Position gear lever UP • Monitor speed and altitude
Above 100 ft AFL	
"Autopilot 1" or **"Autopilot 2"**, as appropriate	Select autopilot ON, if requested
At or above 400' AFL (or altitude as specified on route manual "Engine Failure–Takeoff" procedure)	
• Comply with runway specific "Engine Failure–Takeoff" procedure; otherwise fly runway heading	
• Select/request Heading ___ or NAV for FMS engine failure procedure, as appropriate	• Select runway heading, engine failure heading, or NAV, if requested • Advise ATC, when able
Climbing through Engine Out Acceleration Altitude	
• Push V/S knob or request "Vertical Speed Zero"	
	• Push V/S knob, if vertical speed zero requested • Verify V/S 0
F Speed (only displayed when flaps 2 or 3 were used for takeoff)	
• Check airspeed	
"Flaps 1", if appropriate	• Check airspeed
	"Flaps 1", if requested
	• Select FLAPS 1, if requested
S speed	
• Check airspeed	
"Flaps UP"	• Check airspeed
	"Flaps UP"
Monitor acceleration to green dot speed	• Select FLAPS 0 • Disarm spoilers
Green dot speed	
• Select/request Open Climb, if desired • Select/request Speed ___, Maintain green dot speed • Select MCT[1]	• Select Open Climb, if requested • Select green dot speed, if requested
"MCT"	• Verify thrust levers at MCT
	"MCT Set"
• Accomplish ECAM and/or QRH procedure(s), as appropriate	
- END -	

[1]If the thrust levers are already in the FLX/MCT detent (e.g., FLEX takeoff), move lever to CL and then back to MCT.

Rejected Takeoff	
Captain	**First Officer**
The captain decides to reject the takeoff	
"Reject, My Aircraft"	
• Retard thrust levers to IDLE • Use Autobrakes MAX or maximum manual braking • Select and maintain maximum reverse thrust until it can be assured the aircraft can stop on the runway[1]	If aircraft control is transferred, call **"Your Aircraft"** • Monitor autobrakes **"No Autobrakes"**, if applicable • Monitor deceleration throughout reject • Notify tower, when able
At 80 knots	
	"80"
At 60 knots	
	"60"
• Maintain slight forward pressure on sidestick	
As soon as the aircraft is stopped and the situation immediately evaluated	
Choose one:	
• Evacuation **not** immediately required:	
Make a PA announcement: **"This is the Captain.** **Remain seated, remain seated, remain seated"**	
• Advise cabin of intentions when able	
• Evacuation ***is*** immediately required:	
• Call for and accomplish QRH Evacuation checklist	• Accomplish QRH Evacuation checklist, if directed
• Check brake temperature indication	
- End -	
[1]In case of complete loss of braking, accomplish "Loss of Braking" procedure	
The distance required to decelerate from a given speed at the high weights associated with takeoff is significantly greater than from the same speed at a typical landing weight.	

Loss of Braking Procedure
If Autobrake is selected:
1. Brake Pedals … Press
If no braking available:
1. REV … MAX **2. Brake Pedals … Release** Brake pedals should be released when the A/SKID & N/W STRG selector is switched OFF, since pedal force produces more braking action in alternate mode than in normal mode. **3. A/SKID & N/W STRG … OFF** **4. Brake Pedals … Press** Apply brakes with care since initial pedal force or displacement produces more braking action in alternate mode than in normal mode. **5. MAX BRK PR … 1000 PSI** Monitor brake pressure on BRAKES PRESS indicator. Limit brake pressure to approximately 1000 psi and at low ground speed adjust brake pressure as required.
If still no braking:
1. Parking Brake … Short and Successive Application Use short and successive brake applications to stop the aircraft. Brake onset asymmetry may be felt at each parking brake application. If possible delay use of parking brake until low speed to reduce the risk of tire burst and lateral control difficulties.
- End -
CAUTION: Autobrakes will not activate below 72 knots.

ILS CAT I	
PF	**PM**
Prior to starting approach	
• Ensure waypoints are sequenced properly • Confirm that the approach phase has been activated	
Initial approach	
• Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 1"	• Check airspeed below V_{FE} Next-10 kts and not accelerating
	"Flaps 1"
	• Select Flaps 1
• Verify **S** speed • Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 2"	• Check airspeed below V_{FE} Next-10 kts and not accelerating
	"Flaps 2"
	• Select Flaps 2
• Verify **F** speed	
Cleared for the approach	
• Check correct LOC identifier displayed on the PFD • Select APPR on FCU • Verify both AP1 and AP2 engaged, if an autopilot approach • Verify **GS** and **LOC** annunciate blue on FMA	
LOC alive	
• Verify LOC deviation display	**"Course Alive"**
• Verify **LOC*** annunciates green on FMA	
G/S alive	
• Verify G/S deviation display	**"Glideslope Alive"**
1½ dots or 3 nm from FAVA	
• Check Airspeed	
"Gear Down"[1]	• Check airspeed
	"Gear Down"
	• Position Gear Lever DOWN • Check Triple Indicator
½ dot or 2 nm from FAVA	
• Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 3" If landing Flaps 3, **"Before Landing Checklist"**	• Check airspeed below V_{FE} Next-10 kts and not accelerating
• Spoilers Arm	
	"Flaps 3"
	• Select Flaps 3 • ENG MODE – NORM or IGN Select IGN if runway is contaminated with standing, water, slush, snow, or ice, or if heavy rain or moderate turbulence is expected or when applying Windshear precautions • If landing Flaps 3, accomplish Before Landing Checklist

ILS CAT I (continued)		
On G/S or 1 nm from FAVA		
2 ENG	• Check airspeed below V_{FE} Next-10 kts and not accelerating	
	If landing Flaps FULL, **"Flaps Full, Before Landing Checklist"**	• Check airspeed below V_{FE} Next-10 kts and not accelerating
		"Flaps Full"
		• Select Flaps FULL, if requested • Accomplish Before Landing Checklist • Monitor speed
	• Verify **GS** annunciates green on FMA	
	"Set Missed Approach Altitude"	• Set missed approach altitude on FCU
1 ENG	• Verify **GS** annunciates green on FMA	
	"Set Missed Approach Altitude"	• Set missed approach altitude on FCU
Final Approach Verification Altitude Fix		
• Verify Final Approach Verification Altitude		
1000 feet AFL		
• Verify altitude		**"1000"** (auto callout)
"Stable"		
• Verify Autothrust in **SPEED** mode		
500 feet AFL		
• Verify altitude, speed, and sink rate		**"500" (auto callout)** **"Stable, Target, Sink ___"; or** **"Stable, ±___, Sink ___"**
100 feet above DA (H)		
		"100 Above"[2] (auto callout)
• Verify altitude		• Divide time between monitoring instruments and scanning outside for runway environment
"Continuing"		
At DA(H)		
Choose One:		
Runway environment **not** in sight		
		"Minimums" (auto callout) **"No Contact"**
"Go Around, TOGA"		
• Execute go-around procedure		
Runway environment **in** sight		
		"Minimums" (auto callout) **"<Visual Cues> In Sight"**[1]
"Landing"		
Verify autopilot disengaged prior to: - 80 feet AGL if CAT 2, CAT 3 SINGLE, or CAT 3 DUAL annunciated on FMA - 160 feet AGL if CAT 1 annunciated on FMA		
- End -		
[1]Gear extension may be delayed until after Flaps 3 is configured when operationally expedient		
[2]Not required if "Landing" callout has been made by PF		

ILS CAT II/III	
Captain (PF)	**First Officer (PM)**
Prior to starting approach	
• Ensure waypoints are sequenced properly • Confirm that the approach phase has been activated	
Initial approach	
• Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 1"	• Check airspeed below V_{FE} Next-10 kts and not accelerating
	"Flaps 1"
	• Select Flaps 1
• Verify **S** speed • Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 2"	• Check airspeed below V_{FE} Next-10 kts and not accelerating
	"Flaps 2"
	• Select Flaps 2
• Verify **F** speed	
Cleared for the approach	
• Check correct LOC identifier displayed on the PFD	
• Select APPR on FCU • Select second autopilot ON	
"CAT 3 Dual", or "CAT 3 Single"	• Verify both AP1 and AP2 engaged • Verify approach capability
• Verify **GS** and **LOC** annunciate blue on FMA	
LOC alive	
• Verify LOC deviation display	**"Course Alive"**
• Verify **LOC*** annunciates green on FMA	
G/S alive	
• Verify G/S deviation display	**"Glideslope Alive"**
1½ dots or 3 nm from FAVA	
• Check Airspeed	
"Gear Down"[1]	• Check airspeed
	"Gear Down"
	• Position Gear Lever DOWN • Check Triple Indicator
½ dot or 2 nm from FAVA	
• Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 3" If landing Flaps 3, **"Before Landing Checklist"**	• Check airspeed below V_{FE} Next-10 kts and not accelerating
• Spoilers Arm	
	"Flaps 3"
	• Select Flaps 3 • ENG MODE – NORM or IGN Select IGN if runway is contaminated with standing, water, slush, snow, or ice, or if heavy rain or moderate turbulence is expected or when applying Windshear precautions • If landing Flaps 3, accomplish Before Landing Checklist

ILS CAT II/III (continued)		
On G/S or 1 nm from FAVA		
2 ENG	• Check airspeed below V_{FE} Next-10 kts and not accelerating	
	If landing Flaps FULL, **"Flaps Full, Before Landing Checklist"**[2]	• Check airspeed below V_{FE} Next-10 kts and not accelerating
		"Flaps Full"
		• Select Flaps FULL, if requested • Complete Landing Checklist • Monitor speed
	• Verify **GS** annunciates green on FMA	
	"Set Missed Approach Altitude"	• Set missed approach altitude on FCU
1 ENG	• Verify **GS** annunciates green on FMA	
	"Set Missed Approach Altitude"	• Set missed approach altitude on FCU
Final Approach Verification Altitude Fix		
• Verify Final Approach Verification Altitude		
1000 feet AFL		
• Verify altitude		**"1000"** (auto callout)
"Stable"		
• Verify Autothrust in **SPEED** mode		
500 feet AFL		
• Verify altitude, speed, and sink rate		**"500" (auto callout)** **"Stable, Target, Sink ___"; or** **"Stable, ±___, Sink ___"**
Below 400 feet RA		
• Verify **LAND** annunciates green on FMA		
		"Land Green" or "No Land Green"
• Monitor the approach		
100 feet above minimums		
		"100 Above"[1] (auto callout)
		• Verify altitude
• Verify altitude		
"Continuing"[1]		
• Divide time between monitoring autoflight system and scanning outside for runway environment		
		"Minimums" (auto callout)
		• Verify altitude
Choose One:		
DH Runway environment **not** in sight		
"Go Around, TOGA"		
• Execute go-around procedure		
DH Runway environment in sight		
"Landing"		
AH (Electronically verified aircraft will land in touchdown zone)		
"Landing"		
- End -		
[1]Gear extension may be delayed until after Flaps 3 is configured when operationally expedient		
[2]A320 Autoland requires Flaps Full if single engine		

Managed Non-ILS Approach	
PF	**PM**
Prior to starting approach	
• Ensure waypoints are sequenced properly • Confirm that the approach phase has been activated	
Initial approach	
• Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 1"	• Check airspeed below V_{FE} Next-10 kts and not accelerating
	"Flaps 1"
	• Select Flaps 1
• Verify **S** speed • Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 2"	• Check airspeed below V_{FE} Next-10 kts and not accelerating
	"Flaps 2"
	• Select Flaps 2
• Verify **F** speed	
Cleared for the approach	
• Select APPR on FCU	
• Verify **FINAL** and **APP NAV** annunciate blue on FMA	
Final approach course intercept	
• Verify **APP NAV** annunciates green on FMA	
Approximately 3 nm prior to FAF/GP intercept	
• Check Airspeed	
	• Check airspeed
"Gear Down"[1]	
	"Gear Down"
	• Position Gear Lever DOWN • Check Triple Indicator
Approximately 2 nm prior to FAF/GP intercept	
• Check airspeed below V_{FE} Next-10 kts and not accelerating	
"Flaps 3" If landing Flaps 3, **"Before Landing Checklist"**	
	• Check airspeed below V_{FE} Next-10 kts and not accelerating
	"Flaps 3"
• Spoilers Arm	
	• Select Flaps 3 • ENG MODE – NORM or IGN Select IGN if runway is contaminated with standing, water, slush, snow, or ice, or if heavy rain or moderate turbulence is expected or when applying Windshear precautions • If landing Flaps 3, accomplish Before Landing Checklist

Managed Non-ILS Approach (continued)	
Approximately 1 nm prior to FAF/GP intercept	
2 ENG • Check airspeed below V_{FE} Next-10 kts and not accelerating	
If landing Flaps FULL, **"Flaps Full, Before Landing Checklist"**	• Check airspeed below V_{FE} Next-10 kts and not accelerating
	"Flaps Full"
	• Select Flaps FULL, if requested • Accomplish Before Landing Checklist • Monitor speed
1 ENG • No actions – maintain Flap 3 configuration and airspeed	
Glidepath intercept/capture (FINAL APP)	
• Verify **FINAL APP** annunciates green on FMA	
"Set Missed Approach Altitude"	• Set missed approach altitude on FCU
1000 feet AFL	
• Verify altitude	**"1000"** (auto callout)
"Stable"	
500 feet AFL	
• Verify altitude, speed, and sink rate	**"500"**[2] (auto callout) **"Stable, Target, Sink ___"; or** **"Stable, ±___, Sink ___"**
100 feet above DA or DDA	
	"100 Above"[3,4]
• Verify altitude	• Divide time between monitoring instruments and scanning outside for runway environment
"Continuing"[2]	
At DA or DDA	
	"Minimums"[3]
Choose one:	
Runway environment <u>not</u> in sight	
	"No Contact"
"Go Around, TOGA"	
• Execute go-around procedure	
Runway environment **is** in sight	
	"<Visual Cues> In Sight"[2]
"Landing"	
Verify autopilot disengaged no later than 250 feet AFE	
- End -	

[1]Gear extension may be delayed until after Flaps 3 is configured when operationally expedient
[2]Callout not required when it occurs near the same time as the "Hundred Above" or "Minimums" callouts
[3]Not required if "Landing" callout has been made by PF
[4]Some aircraft will also make an auto callout

Landing	
PF	**PM**
If Autoland: RETARD (auto callout) 10 feet RA Or … If Manual Landing: 20-30 feet RA	
• Verify thrust levers at idle	• Monitor attitude on PFD
	• **"Pitch"**, if pitch attitude reaches 10° A319/320 or 7.5° A321 • **"Bank"**, if bank reaches 7°
Touchdown	
• Select Max Reverse, as required	• Verify spoiler extension and **REV** green on ECAM
	"Spoilers" or **"No Spoilers"**, if applicable **"One Reverse"** or **"No Reverse"**, if applicable **"No Rollout"**, if applicable
Nosewheel touchdown	
• Apply brakes, as required	• Monitor autobrakes, if selected
	"No Autobrakes", if applicable
	• Monitor deceleration
80 Knots	
• Begin to modulate toward idle reverse	**"80"**
60 knots	
• Ensure idle reverse thrust or less • If Autoland, disconnect autopilot	**"60"**
- End -	

Soft Go-Around	
PF	**PM**
Go-Around	
"Go Around, TOGA"	
• Advance thrust levers to TOGA • Simultaneously rotate to FD commanded attitude • Engage/Ensure NAV[1] • Retard thrust levers to CL detent[2]	• Check **MAN TOGA** on FMA
	"TOGA Set"
	• Engage/Ensure NAV[1]
"Climb"[2]	
	• Check **THR CLB** on FMA[2]
	"Climb Set"[2]
"Go Around Flaps"	
	"Flaps ___"
	• Retract flaps to the go-around setting (e.g., "Flaps 3")
• Check **SRS** annunciated on FMA	
Positive rate of climb	
	• Verify positive rate of climb on VSI
	"Positive Rate"
• Verify positive rate of climb	
"Gear Up"	
	"Gear Up"
• Execute published missed approach or proceed as instructed by ATC	• Position gear lever UP • Advise ATC
Above 100 ft AFL	
"Autopilot 1" or **"Autopilot 2"**, as appropriate	• Select autopilot ON, if requested
At or above 400 ft AFL	
Select/request **"Heading ___"**, if appropriate	• Select/adjust HDG, if requested
At the ACCEL ALT (SRS transitions to **CLB**)	
• Follow FD commands to reduce pitch and accelerate	
F Speed	
• Check airspeed above **F** speed and accelerating	
"Flaps 1"	
	• Check airspeed above **F** speed and accelerating
	"Flaps 1"
	• Select FLAPS 1
S Speed	
• Check airspeed above **S** speed and accelerating	
"Flaps Up, After Takeoff Checklist"	• Check airspeed above **S** speed and accelerating
• Monitor acceleration to green dot speed	**"Flaps Up"**
	• Select FLAPS 0 • Disarm Spoilers • Accomplish After Takeoff Flow and After Takeoff Checklist
- End -	

[1]NAV should be promptly engaged unless the desired missed approach path cannot be flown in NAV (e.g. visual approach, dual FMGC failure, etc.) or ATC assigns a heading. If HDG is used, maintain the current heading until reaching 400' AFE.
[2]If TOGA is required throughout the initial climb (full go-around), delay setting climb thrust until the Thrust Reduction Altitude (LVR CLB flashing).

Engine-Out Go-Around	
PF	**PM**
Go-Around	
"Go Around, TOGA"	
• Advance thrust lever to TOGA • Simultaneously rotate to FD commanded attitude • Engage/Ensure NAV or HDG[1] as required	
	• Check **MAN TOGA** on FMA
	"TOGA Set"
• Simultaneously rotate to FD commanded attitude • Engage/Ensure NAV or HDG[1] as required	• Engage/Ensure NAV or HDG[1] as required
"Go Around Flaps"	
	"Flaps ___"
	• Retract flaps to the go-around setting (e.g., "Flaps 2")
• Check **MAN TOGA** | **SRS** annunciated on FMA	
Positive rate of climb	
	• Verify positive rate of climb on VSI
	"Positive Rate"
• Verify positive rate of climb	
"Gear Up"	
	"Gear Up"
Maintain FD commanded altitude	• Position gear lever UP • Advise ATC • Monitor speed and altitude
Above 100 ft AFL	
"Autopilot 1" or **"Autopilot 2"**, as appropriate	
	• Select autopilot ON, if requested
At or above 400 ft AFL (or altitude as specified on published "Engine Failure – Missed Approach)	
• Comply with runway specific "Engine Failure – Missed Approach" procedure (if published); otherwise, fly runway heading	
• Select/request Heading ___, if appropriate	• Select runway heading, engine failure heading, if requested • Monitor missed approach procedure

Engine-Out Go Around (Continued)	
At or above 1000 ft AFL (or altitude as specified on published "Engine Failure – Missed Approach)	
• Push V/S knob or request "Vertical Speed Zero"	
	• Push V/S knob, if vertical speed zero requested • Verify V/S 0
F Speed	
• Check airspeed	
"Flaps 1"	
	• Check airspeed
	"Flaps 1"
	Select FLAPS 1
S speed	
• Check airspeed	
"Flaps Up, After Takeoff Checklist"	
	Check airspeed
	"Flaps Up"
• Monitor acceleration to green dot speed	• Select FLAPS 0 • Disarm spoilers • Accomplish After Takeoff Flow and After Takeoff Checklist
Green dot speed	
• Select/request Open Climb, if desired • Select/request Speed ___	
	• Select Open Climb, if requested • Select green dot speed, if requested
• Maintain green dot speed • Select MCT	
"MCT"	
	• Verify thrust levers at MCT
	"MCT Set"
• If necessary, accomplish ECAM and/or QRH procedure(s), as appropriate	
- END -	
1NAV should be promptly engaged unless the desired missed approach path cannot be flown in NAV (e.g., visual approach, dual FMGC failure, etc.) or ATC assigns a heading. If HDG is used, maintain the current heading until reaching 400' AFL.	

PRM *Climbing* Breakout	
Captain	**First Officer**
Alert	
"Breakout, TOGA"	
	• If RA procedure, turn both FDs off
	"TOGA Set"
Simultaneously: • Disconnect Autopilot • Advance thrust levers to TOGA • Turn to heading • Establish climb (follow RA, if received) • Select thrust levers to CL when able	• Set and select heading on FCU • Set (do <u>not</u> select) altitude on FCU
"Climb"	
	• Verify CL limit on E/WD
	"Climb set"
	• Monitor flight path and speed; call out deviations
Established on heading	
• Reestablish automation • Reconfigure aircraft, as desired	
	• Reconfigure aircraft, as desired
- End -	

PRM *Descending* Breakout	
Captain	**First Officer**
Alert	
"Breakout"	
Simultaneously: • Verify thrust levers remain in CL detent • Disconnect Autopilot • Turn to heading • Establish descent (follow RA, if received), not to exceed 1000 FPM (unless directed by RA)	• If RA procedure, turn both FDs off • Set and select heading on FCU • Set (do not select) altitude on FCU • Monitor flight path and speed; call out deviations
Leveled off and established on heading	
• Reestablish automation • Reconfigure aircraft, as desired[1]	
	• Reconfigure aircraft, as desired
- End -	
[1]After a descending breakout, the GA phase will not have been automatically sequenced. Unless TOGA is subsequently selected, it will be necessary to re-insert the anticipated approach into the flight plan.	

Visual Approach Callouts	
PF	**PM**
1000 feet AFL	
• Verify altitude	**"1000"** (auto callout – if installed)
"Stable"	
• Verify Autothrust in **SPEED** mode	
500 feet AFL	
• Verify altitude, speed, and sink rate	**"500"** (auto callout – if installed) **"STABLE, TARGET, SINK ___"** or **"STABLE, ± _____, SINK _____"**
- End -	

Stabilized Approach Callouts		
If …	and …	then …
At 1,000' AFL	Stabilized	The PF calls **"Stable"**
	Unstabilized in IMC	The PF calls **"Unstable, Go Around, TOGA"** and performs a go-around.[1]
	Unstabilized in VMC	Compliance with the flight parameters shown above may be delayed until 500' AFL as long as "Unstable" is called out along with the deviation (e.g., "Unstable, half dot high, correcting", etc.), otherwise the PF calls out **"Unstable, Go Around, TOGA"** and performs a go-around[1].
At 500' AFL	Stabilized[2]	The PM calls **"Stable, Target, Sink ___"** , or **"STABLE, ± ___, SINK ___"**
	Unstabilized	The PM calls **"Unstable, Go Around"** and the PF performs a go-around.[1]
[1]If non-normal conditions require deviation and are briefed the approach can be continued. [2]Callout not required during non-ILS approach when it occurs near the same time as the "Hundred Above" or "Minimums" callout.		

Deviation Callouts	
Airspeed	**"AIRSPEED"** – With landing flaps, anytime IAS is: • Less than Target -5 knots • More than Target +10 knots
Rate of Descent	**"SINK RATE"** when: • Below 2000' AFL and descent rate exceeds 2000 fpm • Below 1000' AFL and descent rate exceeds 1000 fpm • Inside FAF and descent rate exceeds 1000 fpm
LOC or G/S Indication	**"LOCALIZER" / "GLIDESLOPE"** when: • On final, LOC deviation greater than ½ dot on PFD LOC • After GS interception, ½ dot on PFD GS
Non-ILS Approaches	Vertical deviation – **"PATH"** Cross-track error exceedance – **"TRACK"** Bearing deviation – **"VOR"** or **"NDB"**

Communication During Manual Flight	
Autopilot	**"AUTOPILOT OFF"** or **"AUTOPILOT 1(2)"**
Flight Directors	**"FLIGHT DIRECTORS OFF"[1]** or **"FLIGHT DIRECTORS ON"** Ensure **both** F/Ds are OFF or ON If one FD is off then the other FD must be selected off in order to ensure autothrust maintains target speed.
Speed	**"SPEED ___"** or **"MANAGED SPEED"**
Heading/Nav	**"HEADING ___"** or **"NAV"**
Managed/Open Climb (Descent)	**"OPEN CLIMB (DESCENT)"** or **"MANAGED CLIMB (DESCENT)"**
Vertical Speed	"**VERTICAL SPEED PLUS (MINUS) _____"** or **"VERTICAL SPEED ZERO"**
[1]If the Flight Directors are selected off, the use of the Flight Path Vector (FPV) is recommended.	

EGPWS Recovery Actions & Callouts	
PF	**PM**
Ground proximity *warning* alert	
"TOGA"	
"My aircraft"	
Simultaneously: **Thrust "TOGA"** • Set TOGA thrust **Pitch** • Autopilot – disconnect • Roll wings level • Rotate to full back sidestick	• Verify all actions have been completed • Monitor radio altimeter • Monitor attitude, airspeed, altitude
Configuration • Speedbrakes – retract • Do not alter gear/flap configuration until terrain clearance is assured	Call out: • Any omissions • Call out information on flight path[1] (e.g**., "300 FEET DESCENDING, 400 FEET CLIMBING"** • Call out the safe altitude (e.g., **"MSA IS 3,400 FEET"**) • Advise ATC
• Climb to safe altitude	
After Recovery • Resume normal flight • Retract gear/flaps as required	
- End -	
[1] Radio altimeter is primary flight path indicator. In some cases barometric instruments (altimeter/VSI) can indicate a climb even though terrain elevation may be increasing faster than the climb rate of the airplane. In these cases it is critical to call out the trend "Descending" as determined from the radio altimeter.	

Windshear Escape Maneuver	
PF	**PM**
When encountering a Windshear	
"Escape, TOGA"	
"My aircraft"	
Simultaneously: • Advance thrust levers to TOGA • Roll wings level and rotate at normal takeoff rotation rate (2-3°/sec) to follow SRS commanded pitch • Utilize autopilot if engaged **Note:** Automatic disengagement may occur if α > α PROT. If SRS is not available, disconnect autopilot and use 17.5° using up to full back stick if required.	• Ensure all required actions are completed Callout: • Any omissions • Altitude and trend information based on radio altimeter (e.g., "300 feet descending", "400 feet climbing")
Do not: • Change gear/flap configuration • Attempt to regain lost airspeed *until* windshear is no longer a factor	
After escape is successful	
• Resume normal flight • Retract gear and flaps as required	• Issue PIREP to ATC
- End -	

Windshear Alerts: Takeoff		
Alert	**Prior to V_1**	**At or Above V_1**
Advisory[1] Windshear icon on ND only	• TOGA • Continue the takeoff[2]	• TOGA • Maneuver as required to avoid the windshear
Caution[1] "Monitor radar display"	• Delay/reject the takeoff	
Warning "Windshear ahead, Windshear ahead"[1] or "Windshear. Windshear. Windshear"[3]	• Delay/reject the takeoff	• Perform the Windshear Escape Maneuver
Unacceptable Airspeed Deviations	• Reject the takeoff	• Perform the Windshear Escape Maneuver • At V_R, rotate normally to 15° no later than 2000 feet runway remaining
[1] Inhibited from 100 knots to 50 feet RA. [2] Prior to the start of the takeoff roll, delay the takeoff and refer to Severe Weather/Windshear decision tree in the QRH OD pages. [3] Inhibited on the ground until 3 seconds after liftoff.		

Windshear Alerts: During Approach	
Alert/Aural	**During Approach**
Advisory[1] Windshear icon on ND only	• Continue the approach if able to avoid windshear • Otherwise, execute a normal go-around and maneuver as required to avoid the windshear
Caution[1] "Monitor radar display"	

Warning[2]
"Go around. Windshear ahead"
	• Perform either:
	  ○ a normal go-around, or
	  ○ the windshear escape maneuver

Warning[3] "Windshear. Windshear. Windshear"	• Perform the windshear escape maneuver
Unacceptable Flight Deviations	
[1] Inhibited above 1500 feet and below 50 feet RA [2] Inhibited above 1200 feet and below 50 feet RA [3] Inhibited above 1300 feet and below 50 feet RA	

Nose Low Upset Recovery Actions and Callouts	
Nose Low Recognition: A nose-low pitch attitude is recognized by low pitch attitude, high rate of descent, increasing airspeed, and possibly excessive bank angle.	
PF	**PM**
Recognize and confirm the developing situation	
First indication of nose low upset	
"My aircraft"	
• Autopilot[1] - Off (if required) • A/THR[1] - Off (if required) • Recover from stall[2] (if required) • Roll[3] - Adjust (if required) Adjust bank angle in the shortest direction to wings-level • Thrust and Drag - Adjust (if required)	• Monitor airspeed and attitude throughout the recovery and announce any continued divergence
When airspeed is sufficiently decreasing	
• Recover to level flight[4]	
— End —	
[1]If the AP and/or A/THR are responding correctly to arrest the divergence, it may be appropriate to keep the current level of automation. [2]WARNING: Excessive use of pitch trim or rudder can aggravate an upset, result in loss of control, or result in high structural loads. [3]Reduce g-loading while attempting to roll to wings level because it increases the roll effectiveness while decreasing the asymmetrical loads on the aircraft. [4]Recover to level flight at a sufficient airspeed while avoiding a stall due to premature recovery at low speed, or excessive g-loading at high speed.	

Nose High Upset Recovery Actions and Callouts	
Nose High Recognition: A nose high pitch attitude is recognized by a pitch attitude unintentionally greater than 25°, airspeed decreasing rapidly, and possibly excessive bank.	
PF	**PM**
Recognize and confirm the developing situation	
First indication of nose high upset	
"My aircraft"	
• Autopilot[1] - Off (if required) • A/THR[1] - Off (if required) • Pitch[2] - Apply Nose-Down Apply as much nose-down control input as required to obtain a nose-down pitch rate • Thrust - Adjust (if required) • Roll[3] - Adjust (if required) • Adjust bank angle not to exceed 60 degrees	• Monitor airspeed and attitude throughout the recovery and announce any continued divergence
When airspeed is sufficiently increasing	
• Recover to level flight[4]	
- End -	
[1]If the AP and/or A/THR are responding correctly to arrest the divergence, it may be appropriate to keep the current level of automation. [2]If the authority in pitch is not sufficient, incremental nose down trim inputs may improve elevator control effectiveness. [3]If all normal pitch control techniques are unsuccessful, keeping the current bank or banking the aircraft to enable the nose to drop toward the horizon may be necessary. The bank angle applied should be the least possible to start the nose down and never exceed approximately 60°. [4]Avoid entering a stall due to premature recovery at low speed or excessive g loading at high speed. WARNING: Excessive use of pitch trim may aggravate the upset situation or may result in high structural loads.	

Wake Turbulence Recovery Actions and Callouts	
PF	**PM**
Recognize and confirm the situation	
At the onset of wake turbulence upset	
Autopilot - Disconnect	
Pitch • Apply nose down elevator if necessary to recover from stall and to aid in rolling wings level.	• Verify all actions have been completed and call out any omissions • Monitor attitude, airspeed and altitude • Monitor radio altimeter, and call out information on flight path (e.g., **"300 Feet Descending; 400 Feet Climbing"**, etc.)
Roll • Roll in the shortest direction toward wings level attitude[1]	
Thrust • Add thrust as necessary	
• Adjust pitch to horizon • Check airspeed and adjust thrust • Initiate go-around if on approach with probability of further encounter	• Advise ATC if required
- End -	
[1]During recovery, focus on the sky pointer (bank pointer) of the attitude indicator. Roll the aircraft in the direction of the bank indicator. This is the shortest direction toward an upright wings-level attitude.	

Stall Warning at Lift-Off	
Note: Spurious aural and visual (as installed) stall alert may sound in Normal law, if an angle of attack probe is damaged.	
PF	**PM**
Aural or visual (as installed) stall alert at lift-off	
Thrust	
"My aircraft"	
"TOGA"	
• Set TOGA thrust	
	• Ensure TOGA is set
	"TOGA Set"
Pitch • Autopilot - disconnect • Pitch attitude - 15°	• Verify all actions have been completed and call out any omissions • Monitor attitude, airspeed, and altitude
Roll • Roll wings level	
After a safe flight path and speed are achieved and maintained, if stall warning continues, consider it spurious	
- End -	

Approach to Stall or Stall Recovery Actions & Callouts	
PF	**PM**
Recognize and confirm the situation	
First indication of stall (buffet, aural alert, visual alert (as installed)	
"My aircraft"	
Autopilot - Disconnect	
Pitch • Apply nose down elevator with the sidestick to reduce the angle of attack until buffet and/or aural stall warning stops • In case of insufficient pitch down authority reducing thrust may be necessary[1] • If sidestick input and thrust reduction is not effective, nose down stabilizer trim may be needed[2] Roll • Roll in the shortest direction to wings level if needed[3] Thrust • Adjust as needed	• Verify all actions have been completed and call out any omissions • Monitor attitude, airspeed, and altitude • Monitor radio altimeter, and call out information on flight path (e.g., **"300 Feet Descending; 400 Feet Climbing"**, etc.)
Configuration • Do not alter gear/flap configuration	
After Stall Recovery	
• Increase thrust smoothly as needed • SPEEDBRAKE - Check retracted • Recover flight path smoothly • If below 20,000 feet and in clean configuration request Flaps 1	• Select Flaps 1, if requested
- End -	

[1]With high thrust engines, low airspeed coupled with high thrust settings may result in a condition where elevator authority is not adequate. This is because aircraft with under-wing-mounted engines have a nose-up pitch moment relative to increased thrust. In some cases, reducing thrust

[2]WARNING: If the sidestick does not provide the needed response, stabilizer trim may be necessary. Excessive use of pitch trim may aggravate the condition, or may result in loss of control or in high structural loads.

[3]Excessive use of pitch trim or rudder may aggravate the condition, or may result in loss of control or in high structural loads.

Emergency Descent	
PF	**PM**
Emergency descent required	
"Emergency Descent"	
"My aircraft"	
Altitude: • Descend to 10,000 ft or minimum safe altitude[1] (whichever is higher) • Continue descent to 10,000 ft when able **Heading:** • Select a turn or proceed straight ahead. **Airspeed:** • SPD … V_{mo}/M_{mo} (limit speed and avoid G load if damage suspected) *Wait minimum of 10 seconds then slowly:* • Speedbrakes … Extend (ensure V_{LS} does not exceed indicated airspeed)	• Apply Emergency Descent procedure on the QRC
1000 feet prior to Level Off: • Speedbrakes … Retract • SPD … LRC (CI 0) or as appropriate	
[1]Consider use of Initial Escape Altitude (IEA), if applicable. Minimum Safe altitude is: • On airway: Minimum Enroute Altitude (MEA), or Minimum Obstacle Clearance Altitude (MOCA), whichever is higher, or • Off airway: Minimum Off-Route Altitude (MORA), or any other altitude based on terrain clearance, navigation aid reception, or • Within terminal area: Highest Minimum Safe Altitude (MSA)	

Driftdown and One Engine Cruise	
PF	**PM**
An engine fails, current altitude cannot be maintained, and a minimum descent rate is desired.	
• THR LEVER(S) – MCT • A/THR – OFF *If <u>not</u> in radar contact:* • 45° turn left or right – Initiate • SPD/MACH (on FCU) - SPD • Speed Select – Green Dot	*If in radar contact:* • ATC – Notify • External lights – All ON • Apply QRH procedure, "Driftdown and One Engine Cruise"
When reaching green dot	
• ALT Selector – Set EO REC MAX or lower ALT and Pull	
- End -	

TA/RA Actions & Callouts	
Avoid excessive maneuvers while aiming to keep the vertical speed outside the red area of the VSI and within the green area (if applicable). If necessary, use the full speed range between Alpha max and Vmax. Resolution Advisories are inhibited below 900 ft.	
PF	**PM**
Traffic Advisory - All	
"TRAFFIC, TRAFFIC" announcement	
• Do not maneuver based on TA alone.	
• Attempt to see the reported traffic	
Preventative Resolution Advisory - All	
"Monitor Vertical Speed" or "Monitor Vertical Speed …" announcement[1]	
"My aircraft" **"AUTOPILOT – OFF"** **"FLIGHT DIRECTORS – OFF"**	
• Maintain or adjust the vertical speed as required to avoid the red area of the vertical speed scale	• Select both FDs OFF • Verify all actions have been completed and coordinate with PF to accomplish omitted items
• Attempt to see reported traffic	
Corrective Resolution Advisory - All	
RA (See announcement list following this table)	
• Respond promptly and smoothly to an RA	
If not already accomplished, **"AUTOPILOT – OFF"** **"FLIGHT DIRECTORS – OFF"**[2]	• If not already accomplished, Select both FDs OFF • Notify ATC • Verify all actions have been completed and coordinate with PF to accomplish omitted items.
• Adjust the V/S as required to avoid the red area • Respect the stall, GPWS, or Windshear warning	
Corrective Resolution Advisory - Approach	
"Climb …", or "Increase Climb" announcement[1]	
• Go Around - Execute	• Notify ATC
• Attempt to see reported traffic	
Clear of Conflict Advisory - All	
"Clear of Conflict" announcement	
• Expeditiously return to the previously assigned ATC clearance when the traffic conflict is resolved and resume normal navigation.	
• AP and/or FD can be reengaged as desired.	
- End -	
[1] "…" following an announcement means the announcement is repeated. [2] On aircraft with AP/FD TCAS, the FD will reengage with the occurrence of a corrective resolution advisory and must be reselected OFF.	

Corrective Resolution Advisories Announcements (RAs)	
RA Category	TCAS II Version 7
Climb	**"CLIMB, CLIMB"**
Descend	**"DESCEND, DESCEND"**
Altitude Crossing Climb	**"CLIMB, CROSSING CLIMB"** (twice)
Altitude Crossing Descend	**"DESCEND, CROSSING DESCEND"** (twice)
Reduce Climb	**"ADJUST VERTICAL SPEED, ADJUST"**
Reduce Descent	**"ADJUST VERTICAL SPEED, ADJUST"**
RA Reversal to a Climb RA	**"CLIMB, CLIMB NOW"** (twice)
RA Reversal to a Descend RA	**"DESCEND, DESCEND NOW"** (twice)
Increase Climb	**"INCREASE CLIMB"** (twice)
Increase Descent	**"INCREASE DESCENT"** (twice)
Maintain Rate	**"MAINTAIN VERTICAL SPEED, MAINTAIN"**
Altitude Crossing, Maintain Rate (Climb and Descend)	**"MAINTAIN VERTICAL SPEED, CROSSING MAINTAIN"**
Weakening of Initial RA	**"ADJUST VERTICAL SPEED, ADJUST"**
Note: If an initial RA is changed to a less aggressive advisory, pilots should respond to the changed RA and adjust the airplane's vertical speed accordingly, while keeping the pitch guidance symbol in the green arc, and/or out of the red arc. If the controller's instructions include vertical guidance that conflicts with RA vertical guidance, follow RA vertical guidance while complying with the controller's lateral instructions.	

FIX Strategy Tool		
Fly	Maintain aircraft control	- PF priority: Fly (aviate & navigate) - PF call out: **"My Aircraft"** - Flight mode awareness
Identify	Identify the: • Problem • Procedure	- Call out the problem - Verify the problem - Identify the required procedure - Reference QRC, if necessary
	Prioritize Procedures in the Following Order:	
	1. Memory Items, if applicable 2. Quick Action Items, if applicable	
	ECAM Procedure	Non-ECAM Procedure
	3. ECAM Exception? a. Yes: QRH Procedure b. No: ECAM Procedure & QRH Follow UP (if applicable)	3. QRH Procedure
eXecute	Execute procedure	- PM executes when stable, if possible - Assign PF (consider FO) - Communicate between PF/PM
Manage	Evaluate and plan	- Evaluate the situation - Develop and communicate a plan - Non-Routine Landing Considerations - Repeat FIX, as necessary
Develop/communicate a plan and coordinate as necessary (ATC, dispatch, flight attendants, PAX. If time permits, reference the QRH Non-Routine Landing Considerations.		

Non-Normal Checklist Execution	
PF	PM
Accomplish each non-normal checklist item	
Fly the aircraft	Read aloud the appropriate QRH or electronic checklist items: — Checklist title — Challenge and response for all numbered items (left margin items on an electronic checklist) — Indented items, if necessary, and — Notes, cautions, and warnings
Perform/request all items directly related to flying the aircraft (e.g., flightpath control, autopilot, thrust management, etc.)	Position controls <u>not</u> directly related to flying the aircraft and items requested by the PF
There are three types of non-normal checklist items: Standard, Confirm, and Verify	

Standard	
Standard non-normal checklist items, the PM reads aloud the checklist challenge and response, selects the proper control, accomplishes the action, then repeats the response aloud.	
Standard Example	
ENG MODE SEL … IGN	
PF	PM
	• Read aloud **"Engine Mode Selector, Ignition"**
• Fly the aircraft	• Position Engine Mode Selector to Ignition
	• Repeat aloud **"Ignition"**

Confirm	
Accomplished the same as standard non-normal checklist items except the action will not be accomplished until the control is identified by one pilot and confirmed by the other pilot. Confirm items in flight include: — Thrust levers — Any red guarded control (e.g., fire pb) — Engine Master — IR Rotary Selectors The passenger door disarming lever is a confirm item on the ground. QRH items have "Confirm" printed between the challenge and response while ECAM Confirm items do not.	
To ensure the effects of thrust reduction are appropriately controlled by the PF, movement of any thrust lever is always the responsibility of the PF. When an ECAM or checklist procedure requires thrust lever reduction, the PM verbally confirms the PF has identified and is touching the correct thrust lever and then the PF moves the affected thrust lever.	
ECAM Confirm Example (Thrust Levers Only)	
THR LEVER 1 … IDLE	
PF	PM
• Fly the aircraft	• Read aloud **"THRUST LEVER 1 Idle"**
• Touch, but do not move Thrust Lever 1	• Ensure the PF is touching the correct thrust lever
	• State **"Confirmed"**
• Position thrust lever 1 to idle	
• Repeat aloud, **"Idle"**	
QRC/QRH Confirm Example (Thrust Levers Only)	
THR LEVER 1 … CONFIRM … IDLE	
PF	PM
• Fly the aircraft	• Read aloud **"THRUST LEVER 1, confirm idle"**
• Touch, but do not move Thrust Lever 1	• Ensure the PF is touching the correct thrust lever
	• State **"Confirmed"**
• Position thrust lever 1 to idle	
• Repeat aloud, **"Idle"**	
All other confirm items the action is accomplished by the PM but not until the PF verbally confirms the PM has identified and touching the correct control	
ECAM Confirm Example	
ENG MASTER 1 … OFF	
PF	PM
	• Read aloud **"ENGINE MASTER 1, OFF"**
• Fly the aircraft	• Touch, but do not move engine master 1
• Ensure the PM is touching the correct engine master	
• State **"Confirmed"** when ready for action	
	• Position engine master 1 OFF
	• Repeat aloud **"OFF"**
QRC/QRH Confirm Example	
ENG MASTER 1 … CONFIRM … OFF	
PF	PM
• Fly the aircraft	• Read aloud **"ENGINE MASTER 1, confirm OFF"**
	• Touch, but do not move engine master 1
• Ensure the PM is touching the correct engine master	
• State **"Confirmed"** when ready for action	
	• Position engine master 1 OFF
	• State, **"OFF"**

Verify	
Accomplished the same as standard non-normal checklist items except the response is repeated by the PF	
Verify Example	
Gear … Verify … Down, 3 Green	
PF	PM
● Maintain aircraft control	● Read aloud **"Gear, verify, down three green"**
● Verify gear is down and three green lights are illuminated	
● Repeat aloud, **"Down three green"**	

ECAM Procedures		
PF	PM	Example
"ECAM Actions"		
For each ECAM procedure		
	• Announce Title of failure	• **HYD B RSVR OVHT** "Hydraulic blue reservoir overheat"
	• Confirm fault – Review the overhead panel and/or associated SD page, to confirm the failure, before taking any action. Keep in mind that the sensors on the overhead panel and/or SD may be different from the sensors that trigger the failure.	• Observe HYD SD page with blue reservoir overheat indications. Observe overhead HYD panel with illuminated fault lights.
	• For each line, read the full line of ECAM action • Perform the ECAM action or request execution by the PF • Repeat the response • Check the SD page to observe that the selected action results in the proper indication	• **BLUE ELEC PUMP … OFF** PM: "Blue electric pump, off" • Select blue electric pump pb OFF • PM: "Off" • Observe the resulting blue electric pump indication on the HTD SD page
Once blue action lines are completed, if applicable		
	• Request Clear: "Clear <name of system>?"	• **HYD B RSVR OVHT** PM: "Clear hydraulic?"
• Ensure that all blue actions lines are completed		
• State: "Clear <name of system>"		• PF: "Clear Hydraulic"
	• Press CLR pb	
For each System Display (SD) page that is presented		
• Analyze the SD page	• Analyze the SD page	• SD page title: F/CTL PM: "Clear Flight Control?"
	• Request Clear: "Clear <SD page title>?"	
• When ready for the SD page to be cleared, state "Clear <SD page title>"		• PF: "Clear Flight Control"
	• Press CLR pb	
When the STATUS page is displayed		
	• Communicate intentions: — System Resets — Normal Checklist(s) — ECAM Follow-Up procedures (QRH) — Review of STATUS page	• E.G., "Holding Status, let me check for ECAM Follow-ups"

ECAM Procedures (Continued)		
When the STATUS page is reviewed		
	• Read STATUS line by line considering the implications of the aircraft status compared to the plans for the remainder of the flight. The procedures associated with the STATUS should be previewed to evaluate the associated workload and performed at the appropriate flight phase	
	• Request Clear: "Clear status?"	
• When ready for the status pages to be cleared, state "Clear status"		
	• Press CLR pb	
	• State "ECAM actions complete"	

ECAM Procedures
When an ECAM is displayed, the PM performs ECAM procedures when: • the aircraft trajectory is stabilized • Quick Action items are completed, if applicable • the procedure is not an ECAM Exception • the PF announces, "ECAM actions"
The ECAM actions are divided into several steps, which are clearly identified on the EWD and SD pages. The PM must: • "READ & DO" the ECAM procedures, identified as procedure action lines on the EWD • Analyze the operational impact on the affected system via the SD page • Obtain PF confirmation before clearing any ECAM • Read the STATUS page, including associated procedures
If an ECAM procedure requests the flight crew to apply a QRH procedure, in order to prevent the crew from being interrupted by subsequent ECAM alerts of less priority, the flight crew should keep the procedure displayed on the ECAM while applying the requested QRH procedure.
The ECAM STATUS page provides a summary of the state of the aircraft and certain capabilities (e.g., approach capability). It provides a valuable resource to assess the state of the aircraft against the plan for the remainder of the flight, consistent with the "manage" step in the non-normal methodology. It may be useful to display the STATUS page for review during the arrival briefing.
Depending on the specific non-normal situation, it may be prudent to utilize computer reset procedures or QRH ECAM Follow-Up procedures that change the state of the aircraft prior to reviewing the STATUS page. The crew has a choice of what actions to take when the STATUS page is displayed: • Consider appropriate System Reset(s) • Consider completing any remaining Normal Checklists • Consider accomplishing the ECAM Follow-Up Procedures in the QRH • Review the STATUS page if not restored to NORMAL
If the STATUS page will not be immediately reviewed, communicate what actions will be taken. E.g., "Holding Status. Let me check for ECAM Follow-ups."
Holding ECAM. When necessary, the PF may interrupt ECAM actions (E.g., "Hold ECAM") when the crew needs to perform actions which require acknowledgment, check or crosscheck (e.g. communication to ATC, request of configuration change, baro setting). Then, they should continue with ECAM actions (e.g., "Continue ECAM").
When carrying out a procedure displayed on the ECAM, it is essential that both pilots are aware of the present display. Before any CLEAR action, crosscheck that no cyan message remains (except in case of no action feedback), that can be eliminated by a direct action.
If an ECAM alert disappears while a procedure is being applied, the alert can be considered no longer applicable. Application of the procedure can be stopped. For example, during the application of an engine fire procedure, if the fire is successfully extinguished with the first fire extinguisher bottle, the ENG 1(2) FIRE warning disappears and the procedure no longer applies. Any remaining ECAM procedures should be performed as usual.
If red LAND ASAP is part of the procedure, land as soon as possible at the nearest airport at which a safe landing can be made. This would include consideration of the nearest destination, adequate or emergency airports. Red LAND ASAP information is applicable to a time-critical situation. If amber LAND ASAP is part of the procedure, consider landing at the nearest suitable (destination or adequate) airport.
When LDG DIST PROC ... APPLY appears on ECAM or in the QRH, the non-normal may impact landing distance. Complete Non-Normal landing distance calculation procedures. See Performance Manual or the A320 Land iPad application.
In the event of a Crew Awareness ECAM (e.g., COND AFT CRG ISO VALVE) on the ground, dispatch may not be permitted or an MEL/CDL may apply. Comply with "After Gate Departure" procedure.
The ECAM Exception Index located on the QRC identifies certain ECAM procedures that may be incomplete or erroneous. These procedures should be completed with reference to the QRH in lieu of the ECAM electronic checklist.
After completing an ECAM procedure, perform any applicable ECAM Follow-Up procedures if listed on the Cautions and Warnings Requiring QRH Follow-Up index in the QRH. The crew may elect to perform any QRH Follow-Up actions or approved computer resets prior to reviewing the ECAM STATUS page.
If the non-normal is not an ECAM Exception, the ECAM Non-Normal Supplemental Manual is available for reference, time permitting. This manual consists of information from the manufacturer at the time of publication based on available data related to aircraft-specific modification status and should therefore be considered for "information only".
When certain parameters exceed the normal range, the relevant ECAM system page is automatically displayed and the parameter (shown in green) pulses. Refer to the relevant system parameter in the QRH "ECAM Advisory Conditions and Recommended Actions" Index (tan pages).
ECAM messages directly related to the application of an MEL may be emergency canceled (EMER CANC) at the discretion of the captain. It is not necessary to comply with non-normal methodology.
Phase of Flight Non-Normal Procedure. Use the QRC/ECAM/QRH as follows: In-Flight: Refer to the QRC/ECAM/QRH for all non-normal situations. Anytime the aircraft is unable to maintain current altitude due to an engine failure or an ECAM/QRH-directed thrust reduction, the crew will immediately apply the QRH procedure Driftdown and One Engine Cruise. Ensure the aircraft is stable before initiating or resuming any other applicable QRC/ECAM/QRH procedures. On the Ground: Refer to the QRC/QRH to stabilize the aircraft and/or evacuate. Refer to the MEL after departing the gate and prior to flight.

<table>
<tr><th colspan="4">ADDITIONAL MEMORY LIMITATIONS (In Bold)</th></tr>
<tr><td colspan="4">OPERATION LIMITS
Maximum wind for takeoff and landing: 50 knots (including gusts)
Maximum crosswind for takeoff and landing: 35 knots (including gusts)
Maximum crosswind (including gusts) for Autoland (Vis ≥ 4000 or 3/4: 20 knots
Maximum crosswind for landing Vis < 4000 or 3/4: 15 knots
Maximum tailwind component for takeoff (A320 and A321 with IAE engines): 10 knots
Maximum tailwind component for takeoff (All A319 and A320/321 with CFM engines): 15 knots
Maximum tailwind component for landing (non-Sharklet): 10 knots
Maximum tailwind component for landing (Sharklet): 15 knots
Maximum operating altitude: 39,000 feet</td></tr>
<tr><td colspan="4">SPEED LIMITS
Maximum operating airspeed (V_{MO}): 350 KIAS
Maximum operating Mach number (M_{MO}): 0.82M
Maximum taxi speed: 30 knots
Maximum taxi speed for 90 degree turn: 10 knots
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</td></tr>
<tr><td>Turbulence Penetration Speeds</td><td>A319/320</td><td colspan="2">A321</td></tr>
<tr><td>At or above 20,000 feet</td><td>275 KIAS/.76M</td><td colspan="2">300 KIAS/.76M</td></tr>
<tr><td>Below 20,000 feet</td><td>250 KIAS</td><td colspan="2">270 KIAS</td></tr>
<tr><td colspan="4">ICE & RAIN PROTECTION
Engine Anti-ice ON when OAT (Ground) / TAT (Flight): 10º C or below
(except during climb and cruise when the temperature is below –40º C SAT)
Engine anti-ice must be ON prior to and during descent in icing conditions
(including temperatures below –40º C SAT)</td></tr>
<tr><td colspan="4">HYDRAULICS, BRAKES, & LANDING GEAR: Maximum landing gear extension altitude: 25,000 feet</td></tr>
<tr><td colspan="4">FLIGHT CONTROLS: Maximum operating altitude with flaps and/or slats extended: 20,000 feet</td></tr>
<tr><td colspan="4">AUTO FLIGHT SYSTEM: Autopilot Engaged – Minimum Height: 100 feet AGL After Takeoff in SRS mode.</td></tr>
<tr><td colspan="4">Maximum Winds for Automatic Approach, Landing, and Rollout (including gusts):</td></tr>
<tr><td>Wind Component</td><td>Visibility</td><td colspan="2">Limitation</td></tr>
<tr><td colspan="4">A319</td></tr>
<tr><td>Headwind</td><td>Any</td><td colspan="2">20 knots (two engines)
15 knots (single engine)</td></tr>
<tr><td>Tailwind</td><td>Any</td><td colspan="2">Sharklet: 5 knots
Non-Sharklet: 10 knots if LDG ELEV below 5,750’ MSL and in CONF FULL. Otherwise 5 knots</td></tr>
<tr><td rowspan="2">Crosswind</td><td>≥ 4000 or 3/4</td><td colspan="2">20 knots (two engines)
10 knots (single engine)</td></tr>
<tr><td>< 4000 or 3/4</td><td colspan="2">15 knots (two engines)
10 knots (single engine)</td></tr>
<tr><td colspan="4">A320/321</td></tr>
<tr><td></td><td></td><td>A320/A321</td><td>A321NX</td></tr>
<tr><td>Headwind</td><td>Any</td><td>30 knots</td><td>15 knots</td></tr>
<tr><td>Tailwind</td><td>Any</td><td>10 knots</td><td>10 knots</td></tr>
<tr><td rowspan="2">Crosswind</td><td>≥ 4000 or 3/4</td><td>20 knots</td><td rowspan="2">10 knots</td></tr>
<tr><td>< 4000 or 3/4</td><td>15 knots</td></tr>
<tr><td colspan="4">RSVM: The maximum allowable in-flight difference between captain and first officer PFD altitude displays for RVSM operations is 200 feet.</td></tr>
<tr><td colspan="4">POWERPLANT: Minimum oil quantity for dispatch: 13 quarts (14 quarts for A321NX)
Reverse thrust is for ground use only.</td></tr>
</table>

Send corrections/comments to Bob Sanford, Email: busdriver@hky.com
***Unofficial Airbus Study Site*:** www.airbusdriver.net