Engine Failure After V1

Cleared for Takeoff, before takeoff checklist complete

Above 80kt only reject T/O for: Engine Fire / Engine Failure / Windshear / unsafe to fly Captain removes hands from controls at V1	PF: "Set takeoff thrust" PM: "Takeoff thrust set, indications normal" 80kt PM: "80kt" PF: "Check" V1 PM: "V1"

Engine Fire / Failure / Severe damage or separation

PF: "Squeeze & Freeze" the rudder to maintain directional control, acceleration to V1 slower PF: Rotate with 2,5°/s to a target of 12,5° Then follow flight directors Note: No action below 400ft except to cancel the warnings and raise the gear with a positive rate	PM: "Engine Failure/Fire" (Cancel Warning) Vr PM: "Rotate" Positive rate PF: "Gear up" PM: "Positive rate"

400ft

PM: Read out loud all the engine parameters Call out the malfunction (See Below) PF: Complete memory items if any PM: Help PF tracking centrerline by adjusting HDG	PF: "HDG Select, State malfunction" PM: "Engine number 1, N1 shows ... N2 shows ... " PM: "Engine number 1 Severe Damage" PF: "Engine Fire Severe Damage or Separation Memory Items"

MFRA

PF: Follow FD, Ensure near level acceleration Retract the flaps on schedule PM: After Bug Up call, if not done before, call ATC Reset MCP altitude to MSA	PF: "Bug Up" (interrupt checklist if required) PM: "Mayday mayday mayday, callsign, malfunction climbing xxx ft (MSA) on rwy heading, standby"

Flaps Up, No lights

PF: Call for LVL CHG and MCT, Engage Autopilot Verify MSA is set in the MCP, Climb to MSA Fly the up speed speed until above MSA	PF: "LVL CHG, MCT" ... "CMD B"

QRH > After T/O Checklist

PF: Call for the QRH checklist first Notes: PM Obtain WX information during the APU start Verify autopilot is on the operative engine side before switching APU on line Complete all QRH checklist up to "One Engine Inop checklist complete except deffered items" PF: Call for the After T/O checklist Note: PM leaves the start switch in continuous on the failed side to avoid spurious indications When checklist complete, continue with sequence PLAN > NITS > PA	PF: "QRH checklist [...] my radios" PM: Checklist reading as follow: Challenge > Response > Action > Repeat Response Read and complete checklist with QRH in view of PF so that the PF can follow the checklist silently PF: "After takeoff checklist"

Other Notes: MSA protection within 25 NM of navaid only, call ATC for vector when approaching limit
When discharging any extinguisher bottle, verify amber light BOTTLE DISCHARGED is illuminated
Pulling the fire handle will: - Arm one discharge squib for each engine
- Close Fuel, Hydraulic shutoff and engine bleed air valves
- Disable the thrust reverser
- Trip the generator control relay & breaker
- Desactivate the hydraulic pump low pressure light

PLAN > NITS > PA

(optional)	Call ATC: Request delayed vectors or a holding (Use NITS structure) Call the N°1: Advise situation under control and expect NITS briefing in 10mn

PLAN

Problem:	QRH suggests to:	- Plan to land at the nearest suitable airport - Do not use FMC fuel prediction - Plan a single engine landing with Flap 15 (Unable CAT III) - In case of G/A: Single engine G/A with Flap 1 (performance implications)

Information: Fuel / Fuel Flow = Time available
Check nearest suitable airports (Weather, Instrument approach type, Fire & Rescue, MTX base)

Options: Discuss options available
Select: (Continue to Destination, Return to Departure, Divert to Alternate...)

Execute: PF: Advise ATC of intentions, use NITS structure
Hand controls to PM for the NITS, PA and approach setup

Call N°1 with NITS Briefing:
- Nature of the problem "We have had an engine failure"
- Intentions "We will return to Stansted airport"
- Time available "Time available is 20 minutes"
- Specials "Need / No need for an SOS Demo"
- (Time check "Time now is XX:XX UTC")

PA to the passengers:
- Brief and reassuring, not technical, advise of diversion and time to landing
"We are in control of the situation [...] we will return to XXX in aprox XX minutes"

Complete DALTA setup and briefing
Return controls to PF
Complete remaining checklists (One engine inop landing checklist defered items)

Note: Defered items landing checklist reads as follow:
PM: "Challenge & Response"
PF: "Repeat Response"

Evaluate: Is the current course of action the still best one? Any evolutions in the situation?

Emergengy Turn Procedure (notes)

ATC Maday or PAN call should mention ETP route:
- "PAN PAN x3, Callsign 123, Engine Failure, Emergency Turn [Procedure Flown] climbing XXX ft, standby"
ETP route is flown as tracks, not headings.
"Bug Up" and acceleration shall start at the point specified in the ETP but not before MFRA.
Before acceleration limit bank angle to 15° (speed close to V2), the PM should reset the bank angle selector.
All turns after acceleration are at the normal 25° bank angle.
ETP only applies during take off (not during missed approach), and until termination of the takeoff segment.
T/O segment ends when reaching any of: MSA, Minimum vector altitude, or when Return/Divertion is possible.