



Registration **D-AE**

Date



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Flight Test Manual

A321/320

with Engine-Type

IAE V2500

issued by

EuroBerlin Group



Form FTM_A321/320_02-03 Printed in the Federal Republic of Germany

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FEB 2003
EBA SXF HDQ LFib



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Flight test profile

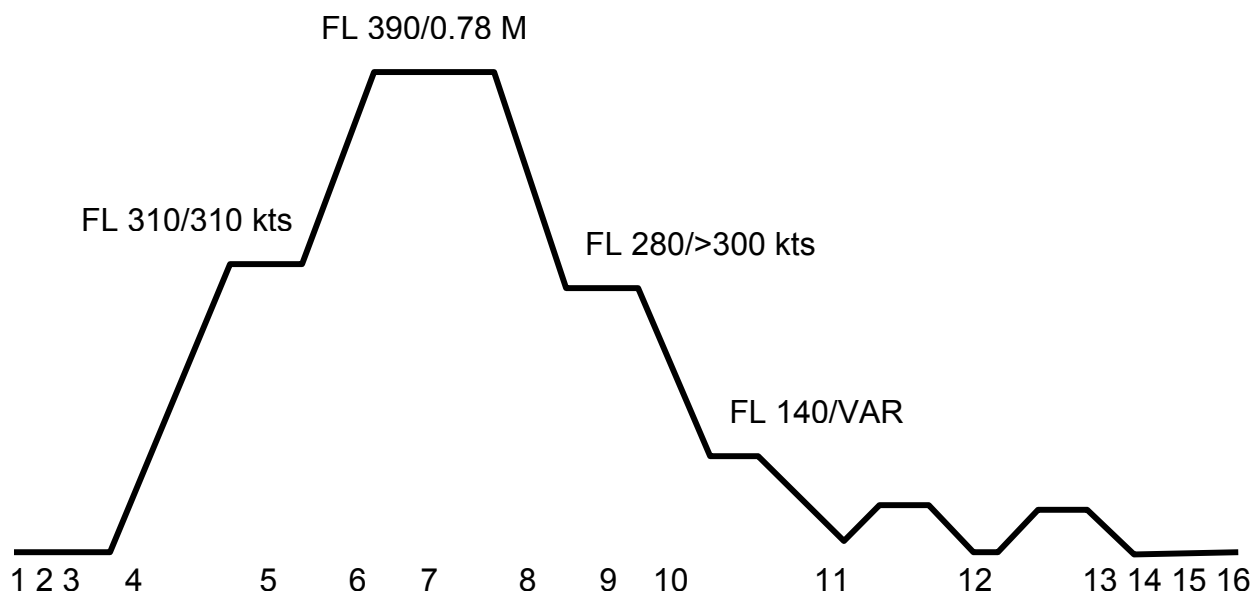


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List of effective pages

This list of effective pages serves to collate revisions and to check the contents of this manual for integrity and effectivity.

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- * R = Revised
- A = Added
- D = Deleted

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Flight test report

Reason for flight test:		From:	To:
Crew Member 1:		Grade:	
Crew Member 2:		Grade:	
A + E Inspector:		Company:	
<u>Signature</u> (Pilot in command):		Additional Crew O/B:	
T/O Fuel: Kg	Wind: kts	OAT: °C	
QNH: hPa	QFE (altitude 0 ft): hPa	Engine start time: UTC	
Please use the following check marks (CM) to sign off the checked items: <input checked="" type="checkbox"/> satisfactory <input checked="" type="checkbox"/> unsatisfactory <input type="checkbox"/> not checked	OFF Block: UTC	Take Off: UTC	
	ON Block: UTC	Landing: UTC	
	Block time: hrs	Flight time: hrs	
	Number of touch and go`s:	Number of full stops:	
Note special checks:			





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Summing up

Fuel quantity	Before start		Parking		Fuel used
Left tank		-		=	
Center/trim tank		-		=	
Right tank		-		=	
Sum		-		=	





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1. Engine start

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Aircraft preperation	- Fuel (~ 14.000 Kg)		
2	Engine start	- Engine start	PERFORM	Record Start time:UTC
3	After engine start	- After engine start procedures - Transfer engine start time to Test Flight Report (page 5) page - Transfer OFF BLOCK time to page 5	PERFORM	





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2. After engine start/taxiing

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Normal braking	- Left and right brakes APPLY	Normal, no rough braking	
2	Yaw damper	- SD F/CTL SELECT	Normal performance UTC	
3	Aircraft steering modes	- Steering handle in both directions TURN - Rudder pedals in both directions MOVE - All steering inputs ZERO	A/C follows handle direction A/C follows pedal direction A/C must not deviate excessively from commanded directions	





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3. Take off

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Before take off		Record: OAT:°C TAT:°C (Max. difference between reported OAT and indicated TAT/SAT +/- 2°C)	
2	Take off (T/O)	- T/O power - At 100 kts: Record engine parameters below N 1:% N 1:% EGT:°C EGT:°C N 2:% N 2:% FF:kg/h FF:kg/h	Record: T/O time: UTC	
		- Transfer T/O time to page 5		





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4. Climb to FL 310

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Auto flight system (AFS)	At or above 30 ft: - FD pitch and roll bars APPEAR	Roll bar directs selected AFS mode Pitch bar directs to hold < 18° NOSE UP	
2	Landing gear	- ECAM "WHEEL" SELECT - Record landing gear operating time from gear level "UP" until all gear doors "CLOSED"	time: sec	
3	Auto thrust system	- AFS auto thrust SELECT	Thrust command acquisition	
4	AFS reversion mode	- A/P 1 ON - V/S mode > 4000 ft	Left and right side stick NEUTRAL	
5	Flight control authority	- A/P OFF - Bank angle (side stick) < 33° - Side stick RELEASE - Bank angle (side stick) > 33° - Side stick RELEASE UTC..... - Bank angle (side stick) > 45°	Bank angle maintained at 33° Bank angle decreased to 33° All PFD synoptics other than SPD, HDG, ALT an V/S removed from PFD 1 and 2	

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4. Climb to FL 310

NO.	TEST	ACTION	CHECK/LIMITS	CM
6	AFS reversion mode	<ul style="list-style-type: none"> - A/P 1 ON - V/S mode >4000 ft <p>Note: Any side stick input causes A/P disengagement!</p> <p>Perform same test with A/P 2</p> <p>Airplane configuration NORMAL</p>	<p>Left and right side stick NEUTRAL POSITION</p> <p>Same results</p>	
7	Degraded flight control law operation	<ul style="list-style-type: none"> - IAS At or below 305 kts - Flight controls OPERATE very smoothly 	Alternate law operation	
8	COM and NAV equipment	<ul style="list-style-type: none"> - ATC transponder CHECK - VHF CHECK - HF CHECK - ADF Tune to at least two active frequencies Audio and indication - VOR Tune to at least two active frequencies Audio and indication - DME Tune to at least two active frequencies Audio and indication 	<p>Proper reception Check with ATC</p> <p>Proper reception Check with ATC</p> <p>Proper reception Check with ATC</p> <p>ADF 1 ADF 2</p> <p>VOR 1 VOR 2</p> <p>DME 1 DME 2</p>	





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5. Cruise at FL 310/310 kts

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Engine readings	- Speed 310 kts	Record:	
		- A/P ON	TAT..... °C	
		- A/THR OFF	SAT..... °C	
		- Anti ice OFF	Mach.....	
		Record engine data:		
		Engine 1		
		N 1:..... %		
		EGT: °C		
		N2: %		
		FF: Kg/h		
		Engine 2		
		N 1:..... %		
		EGT: °C		
		N2: %		
		FF: Kg/h		





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6. Climb to FL 390/0,78 M

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Cabin interior	- Check following equipment for proper condition and functioning		
		<ul style="list-style-type: none"> - Seats and seat belts - PSU's, windows and window shades - Lights and signs - Galleys - Lavatories, Water faucets, Vacuum lavatory operation - Panels and partitions - Doors - Fwd entry light dimmed and bright with cockpit door open and closed - Cabin, air-conditioning system and doors for abnormal noise and air or water leakage - Audio and video systems 		





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7. Cruise at FL 390/0,82 M

NO.	TEST	ACTION	CHECK/LIMITS	CM
2	Engine readings	- Speed 0,82 M	Record: TAT.....°C SAT.....°C Mach.....	
		- A/P ON		
		- A/THR OFF		
		- Anti ice OFF		
		Record engine data:		
		Engine 1		
		N 1:..... %		
		EGT: °C		
		N2: %		
		FF: Kg/h		
		Engine 2		
		N 1:..... %		
		EGT: °C		
		N2: %		
		FF: Kg/h		





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8. Descent to FL 280

NO.	TEST	ACTION	CHECK/LIMITS	CM	
1	Overspeed warning (high altitude) UTC.....	<ul style="list-style-type: none"> - Pitch attitude - A/THR - A/P - AIRCRAFT 	<p>~ 5° NOSE DOWN with reference to FPA</p> <p>DISENGAGE OFF</p> <p>ACCELERATE With moderate engine power</p>	OVERSPEED WARNING APPEARS	
		<ul style="list-style-type: none"> - Speed brakes - Throttles - Aircraft - Decelerate until warning - Speed brakes 	<p>EXTEND</p> <p>IDLE</p> <p>MANEUVER</p> <p>STOPPED</p> <p>RETRACT</p>	<p>Aircraft handling NORMAL</p> <p>Speed brakes RETRACTS within max. 10 sec</p>	





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9. Cruise at FL 280/>300 kts

NO.	TEST	ACTION	CHECK/LIMITS	CM	
1	Engine restart	- IAS >300 kts			
		- Engine start selector IGN			
		- Engine shutdown and restart	PERFORM		
		- Engine 1 throttle	IDLE		
		UTC.....	- Engine 1 shutdown	PERFORM	SHUTDOWN
			After 2 min.		
		UTC.....	- Engine 1 restart	PERFORM	RELIGHT
			If no relight:		
UTC.....	- Engine 1 restart	ATTEMPT	RELIGHT		
	After 5 min.				
UTC.....	- Engine 2 throttle	IDLE			
	- Engine 2 shutdown	PERFORM	SHUTDOWN		
	After 2 min.				
UTC.....	- Engine 2 restart	PERFORM	RELIGHT		
	If no relight:				
UTC.....	- Engine 2 restart	ATTEMPT	RELIGHT		
	Note: Record Engine shutdown/restart time				





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10. Descent to FL 140

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Overspeed warning (low altitude < FL240) UTC.....	<ul style="list-style-type: none"> - Pitch attitude ~ 5° NOSE DOWN with reference to FPA - A/THR DISENGAGE - A/P OFF - AIRCRAFT ACCELERATE With moderate engine power 	OVERSPEED WARNING APPEARS	
		<ul style="list-style-type: none"> - Speed brakes EXTEND - Throttles IDLE - Aircraft MANEUVER - Decelerate until warning STOPPED - Speed brakes RETRACT 	<p>Aircraft handling NORMAL</p> <p>Speed brakes RETRACTS within max. 10 sec</p>	





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11. 1st Approach – CAT 3 dual – Go around (G/A)

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	CAT 3 Dual land (DH 50 ft)	<ul style="list-style-type: none"> - A/P 1 ENGAGE - Approach SELECT - A/P 22 ENGAGE - DH 50 ft A/THR DISENGAGE A/P OFF - AIRCRAFT ACCELERATE - With moderate - engine power 	<p>At Outer marker: Audio CHECK</p> <p>At 400 ft RA: PFD 1 and 2 FMA LAND</p> <p>Audio call outs radio heights</p> <p>At Middle marker: Audio CHECK</p> <p>At < 50 ft RA: PFD 1 and 2 FMA FLARE</p>	
		<ul style="list-style-type: none"> - At DH (50 ft RA) GO AROUND At RA above 1200 ft: - A/P ENGAGE 		





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13. 3rd Approach – Dual – Final landing

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Landing gear extension	<ul style="list-style-type: none"> - IAS BELOW ~200 kts - Landing gear lever DOWN - Landing gear lever UP - Landing gear lever DOWN 	<p>GEAR DOWN INDICATION</p> <p>All gear doors CLOSED within 10 sec</p> <p>GEAR DOWN INDICATION</p>	





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14. Landing/After landing

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Reverse	Engine 1 and 2 - reverser REVERSE	Reverser operation CHECKED	
2	Brakes	When auto brake "MED" deceleration is reached: Auto brake DISENGAGE	Auto brake ACTIVE Aircraft behaviour NORMAL No excessive centerline deviation	

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15. RTO Mode

NO.	TEST	ACTION		CHECK/LIMITS	CM
1	Auto brake RTO Mode	- T/O configuration At ~ 90 kts	ESTABLISH	Auto brake system ACTIVE	
		- Throttles	IDLE		
		Auto brake	DISENGAGE		

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16. Parking

NO.	TEST	ACTION	CHECK/LIMITS	CM
1	Summing up	Record on page 5 - On Block time - Block time - Flight time Record on page 6 - Fuel quantities - Calculate fuel used		
2	External	- Walk around	PERFORM	No leaks No damages

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