CHECK FLIGHT CERTIFICATE

ATR 42-300 & ATR 42-320 **CFS 263 Issue 1**

Date:	Crew:	Observer:	Registration:

Performance	Climb #1	Climb #2	
Average Weight			
Average Altitude			ft
Average Temp.			°C
Speed			KIAS
Achieved Rate			fpm
Scheduled Rate			fpm
Margin			fpm
Permitted Margin	-70	-70	fpm

Airfield:

Start Weight Kg/Lbs*:

Takeoff cg:

Performance:

SATIS/UNSATIS/NOT APPLICABLE*

*(delete as applicable)**

Defects

No.	Defect	-/R/FT	Action?

(use a continuation sheet as necessary)

Conclusions/Comments

I CERTIFY that I have tested the above aircraft and have detailed the deficiencies and unsatisfactory features above. Those items annotated R or FT must be dealt with as shown in the notes on the reverse side.

Name:	Signed:	Date:	Licence No.:
For CAA Use only	Report Logged by:	Date:	Report No.:

NOTES

General

Only CAA personnel or pilots specifically briefed to carry out CAA check flights may conduct the test.

General notes on test conduct can be found in the CAA Check Flight Handbook.

This sheet replaces any check flight certificate given in the schedule.

Registration: If the aircraft is not on the UK register, add the manufacturers serial number and expected UK registration (if known).

Crew: Captain, co-pilot, Flight engineer (where applicable).

Airfield: Departure airfield.

Start Weight: Actual all up weight at first engine start. Also delete Kg or Lbs as appropriate.

Takeoff cg: Actual cg at lift-off, preferably as a % of the Mean Aerodynamic Chord.

Performance

A full description of climb analysis is given in the CAA Check Flight Handbook.

Climb#1/Climb#2: Enter in these columns data from the first and second climbs.

Average Weight: The aircraft all up weight at the midpoint of the measured climb.

Average Altitude: The altitude at which the line drawn to average the measured points passes through at the mid time.

Average Temp: The temperature at which the line drawn to average the measured points passes through at the mid time.

Speed: The target climb speed (Indicated Airspeed.)

Achieved Rate: The climb rate as given by the slope of the line drawn to average the measured altitude points in feet per minute.

Scheduled Rate: The expected gross rate of climb read from the appropriate graph in the Flight Manual with any adjustments for configuration differences. For large aircraft, the basic gross data are normally to be found in a separate supplement labelled 'Additional Flight Test Data'.

Margin: The difference between the Scheduled and Achieved rates of climb (negative if achieved is lower than scheduled).

Defects

Enter all defects from the flight. All defects must also be entered in the Technical Log. Procedural items entered in the Technical Log (such as re-stowing oxygen masks) need not be entered here. Items affecting flight safety which were known before the flight, whether or not they were deferred should be entered. In the latter case, the defect should be annotated accordingly after the details.

No.: The first column is to allow the items to be numbered.

Defect: Enter details of the defect.

-/R/FT: Classify each defect according to its impact on safety, regardless of whether it can be deferred according to the MEL. Any deferrals should be dealt with in the normal way in the Technical Log. Items requiring rectification (or deferral under the MEL) before further flight for hire or reward or before the issue of the CofA should be marked 'R'. Additionally, items that require re-checking in-flight following rectification (such as inadequate climb performance) should be marked 'FT'. Items requiring both should be marked 'R/FT'.

Action?: This column should be left blank unless further information is required from the engineers or the item is considered to be of sufficient import that CAA action is considered necessary, then the person/department/agency from whom further action is required should be noted in this column. Annotate accordingly if an MOR or similar report is to be raised.

Conclusions/Comments

Any conclusions, notes or comments useful for tracking defects may be entered.

Name: Only the pilot who carried out the test may sign this sheet.

CAA Check Flight Schedules

All CAA Check Flight Schedules (CFSs) are prepared based on a design standard which, before September 2003, was the UK Type Certificate. Following the creation of EASA there may be different design standards in service within the European Union (EU) - this may include modifications approved in any EU country.

It is the responsibility of the flight crew to ensure that the exercises and limitations in the CFS are correct for the aircraft under test.

The prime source of information will be the aircraft flight manual and in the event of conflict the flight manual should be taken as overriding.

CAA policy is that pilots who conduct check flights on behalf of the Authority must be acceptable to the Authority, must have been briefed on techniques and safety considerations before carrying out the tests in these schedules and must have carried out a check flight within the last 4 years.

The CAA does not accept responsibility for the use of a CAA CFS on a test flight not directly under their control.

CHECK FLIGHT SCHEDULE

ATR 42-300 (2 P&W 120 Engines) & ATR 42-320 (2 P&W 121 Engines) **CFS 263 Issue 1**

Registration	
Flight Date	

Introduction

This schedule is applicable only to the ATR 42 aircraft.

The schedule is based on the assumption that the everyday operation of the aircraft serves as a continues check on the functioning of all normal services. On these check flights, however, the crew are expected generally to monitor the behaviour of all equipment and to report any unserviceable items. In addition to completing all the required tests in the schedule, any characteristics which are considered unsafe or undesirable must be recorded.

Minimum Crew

The minimum flight crew shall be increased by one observer to record the results of the tests. The pilot conducting the tests shall be specifically approved by the CAA (SRG) for carrying out check flights on ATR 42.

Passengers

Commanders are reminded that it is illegal to carry passengers on a check flight made under 'A' Conditions, except where they are required to perform duties in the aircraft in connection with the flight. While it is legal to carry passengers on a test flight of an aircraft with a valid Certificate of Airworthiness, the practice is not recommended. If passengers are carried, however, they should be informed that the risk is greater than on an ordinary flight.

Check Flight Schedule

The pilot conducting the tests must be familiar with the contents of this schedule before flight. All members of the required minimum crew must be provided with copies of the schedule for use in flight.

The data contained in this schedule is correct at the time of writing, but might not be in agreement with subsequent Flight Manual amendments; in cases of conflict, the Flight Manual is overriding, and CAA (SRG) Flight Test Section must be informed. The altitude conditions in the schedule must be observed to ensure adequate safety and validity of the test results. The tests should, if possible, be carried out in the sequence as written.

Operator/Maintenance Organisation	
Airfield	
Registration	
Flight Date	
Pilots	
Observer	

Loading and Calculation of Weight

The aircraft is to be loaded with about 2000 kg fuel, with the C.G. within the Flight Manual limits.

RECORD :	AIRCRAFT WEIGHT :	
	CG :	

Except where otherwise indicated the flight techniques are those associated with normal operation of the aircraft, for example yaw damper engaged. Fuel symmetry must be maintained, particularly during and after the engine-out climbs.

1. Functioning - Part One - Pre-Flight Checks

Check flight deck placards for presences, accuracy and legibility. SAT/UNSAT

Using the Take-off Configuration warning test button check for correct operation with :

a) Pitch trim outside green band SAT/UNSAT

b) Flaps not at Take-off SAT/UNSAT

Using the power levers, check the TAKE-OFF CONFIGURATION WARNING for correct operation with :-

c) Park brake on SAT/UNSAT

2. Take-Off

Carry out normal take-off.
Record any unusual characteristics : [ ]

3. Performance Climb

3.1 Climb After Take-off [(Start above 3000 feet AGL and below FL 70)]

Shut down and feather the LEFT engine

Note any unusual characteristics [ ]

Carry out an engine out take-off climb for 3 minutes on a constant heading, clear of cloud, turbulence, wave effects and inversions using not more than 5° of bank towards the operative engine with :

Flaps 15
Gear up
Left engine inoperative, propeller feathered, fuel off
Right engine go-round power (Table 2 or Table 4)
Maximum RPM
Bleeds off
Anti-icing off
Airspeed V2 = 1.2 V_S (Table 1) [KNOTS]
Altimeter set to 1013 mb

Record : Aircraft weight at start of climb.

Zero fuel weight		Start weight	
Fuel contents		Fuel gone	
Aircraft weight		Aircraft weight	

TIME	ALTIMETER	IAS	SAT	TORQUE
(minutes)	(feet)	(knots)	(°C)	%
0				
½				
1				
1½				
2				
2½				
3				

TRIMMER SETTINGS

ELEVATOR	
RUDDER	
AILERON	

ASI COMPARISON

CAPTAIN	
CO-PILOT	

ENGINE READINGS AT 2 MINUTES

	1	2
TQ		
N_P		
ITT		
N_H		

ZERO FUEL WEIGHT	
FUEL CONTENTS	
AIRCRAFT WEIGHT	

4. Relight

At 150 knots relight the left engine using normal procedures.

RECORD:

Feathered N_p	%
Start ITT	°C

Time to flight idle	secs	(< 60 secs)
Maximum ITT	°C	(850°C for <20secs)

5. Performance En-Route Climb

Shut down and feather the right engine.

Note any unusual characteristics.

Carry out a single engine en-route climb for 5 minutes on a constant heading, clear of cloud, turbulence, wave effects and inversions using not more than 5° bank towards the operative engine with :

Flaps up
Gear Up
Right engine inoperative and propeller feathered.
Left engine maximum continuous power. (See Table 3 or Table 5)
Anti-icing off
Bleeds off
En-route climb speed (1.25 V_S). (See Table 1) _____ Knots
Altimeter set to 1013 mb

Record:

Zero fuel weight		Start weight	
Fuel contents		Fuel gone	
Aircraft weight		Aircraft weight	

Record:

TIME	ALTIMETER	IAS	SAT	TORQUE
(minutes)	(feet)	(knots)	(°C)	%
0				
½				
1				
1½				
2				
2½				
3				
3½				
4				
4½				
5				

TRIMMER SETTINGS

ELEVATOR	
RUDDER	
AILERON	

ASI COMPARISON

CAPTAIN	
CO-PILOT	

ENGINE READINGS AT 2 MINUTES

	L
TQ	
N_p	
ITT	
N_H	

Record:

Zero fuel weight		Start weight	
Fuel contents		Fuel gone	
Aircraft weight		Aircraft weight	

6. Relight

At 150 knots relight the right engine using normal procedures.

RECORD:

Feathered NH	%
Start ITT	°C

Time of flight idle	secs	(<60 secs)
Maximum ITT	°C	(850°C for < 20 secs)

7. Pressurisation (About FL 180)

In manual, select maximum increase on the manual rate knob. Record :

CABIN ALTITUDE AT AUDIO WARNING	feet (9500-10500 feet)

DUTCH ROLL

At 160 knots, select yaw damper off, by applying a force greater than 66 lbs to the rudder pedals, excite the Dutch roll with a small rudder input, check the motion is damped, and check the yaw damper by selecting it on.

SATISFACTORY/UNSATISFACTORY

Select MANUAL control and maximum decrease on the manual rate knob.

Record:

MAXIMUM DIFFERENTIAL PRESSURE	PSI (6.15 - 6.55 PSI) Do not exceed 7 PSI

Select NORMAL rate on the manual knob, then select AUTO pressurisation.

8. High IAS

In the clean configuration accelerate to 260 knots..

Record:

V_{MO} needle	Knots	(246-254 knots)
High speed warning	Knots	(<260 knots and above the V_{MO} needle)

9. Stalling (not below FL 80)

With flap and gear up, idle power, synchophaser off, maximum RPM, carry out a stall from a 1.4 V_S trim speed, decelerating at 1 knot/second. Scheduled speeds are given in Table 1.

Record:

Zero fuel weight	
Fuel contents	
Aircraft weight	

Trim speed	knots	Trim setting	
Scheduled warning	knots	Achieved warning	knots
Scheduled push	knots	Achieved push	knots

Time flaps from up to 15° ____ secs (2-5 seconds)

Carry out a 15 flap, gear up, idle power stall from a 1.4 V_S trim speed decelerating at 1 knot/second.

Record

Zero fuel weight	
Fuel contents	
Aircraft weight	

Trim speed	knots	Trim setting	
Scheduled warning	knots	Achieved warning	knots
Scheduled push	knots	Achieved push	knots

Accelerate back to the trim speed and put horn heat ON, then OFF, and repeat stall to stall warning.

Trim speed	knots	Trim setting	
Scheduled warning	knots	Achieved warning	knots

AOA Switchlight OFF.

Time flaps from 15° to 30° ____ secs (2-5 seconds)

Time gear down at 120 knots ____ secs (<12 secs)

Carry out a 30 flap, gear down, idle power stall from a 1.4 V_S trim speed decelerating at 1 knot/second.

Record :

Zero fuel weight	
Fuel contents	
Aircraft weight	

Trim speed	knots	Trim setting	
Scheduled warning	knots	Achieved warning	knots
Scheduled push	knots	Achieved push	knots

Time flaps from 30° to 15° at 130 knots	secs	(4-9 secs)
Time gear up at 130 knots	secs	(<15 secs)
Time flaps from 15 to up at 140 knots	secs	(4-9 secs)

10. Emergency Gear Extension

At 130 knots, gear and flap up, select the green hydraulic pump off and operate the brakes until the green system pressure is zero. Select the normal gear lever down. Pull the emergency gear handle. Record time to a 3 greens indication.

secs (< 15 secs)

Push in the emergency gear handle, select the green hydraulic pump on and select the gear up.

SAT/UNSAT

11. Fuel Crossfeed

At any convenient time, check the fuel crossfeed system as follows:

Select fuel crossfeed open, check both pump RUN lights illuminate. Switch the left pump OFF and check that engine operation is normal and that the LO PRESS caption does not illuminate. Switch the pump back ON and check all indications normal.

Repeat for the right pump. Finally check both pumps ON and close the crossfeed.

SAT/UNSAT

12. Normal Landing

Using high level of reverse power.

SAT/UNSAT

13. After Landing

During taxy check emergency brakes (not beyond the notch). SAT/UNSAT

HYDRAULIC CROSS-FEED

In a suitable area free of obstacles, switch off green system hydraulic pump and reduce pressure. Open crossfeed and confirm green system pressure recovers. SAT/UNSAT

Close cross-feed, select green pump on, confirm green pressure normal then select blue hydraulic pump and AUX pump off. Reduce pressure then open cross-feed and confirm blue system pressure recovers. SAT/UNSAT

Close cross-feed, select AUX pump on and confirm pressure normal. Select blue pump on.

NOTE: With green pressure low - only emergency brakes available
With blue pressure low - nose-wheel steering NOT available

PROP. BRAKES

Before shutting down when parked, confirm normal operation of No. 2 engine prop. brake. SATISFACTORY/UNSATISFACTORY

Shut down engines as required.

14. After engine shut-down

Before the flight test certificate is completed (first page) both climbs should be checked to ensure that the achieved rate-of-climb is within the allowable tolerance. Results worse than the allowable tolerance should be investigated before the flight test is signed off as being successfully completed.

TABLE 1

ATR 42-300 SCHEDULED SPEEDS
ATR 42-320 SCHEDULED SPEEDS

V_2 15 FLAP = 1.2 V_S		ERC = 1.25 V_S	CLEAN			15 FLAP			30 FLAP		
WT KG	**KIAS**	**KIAS**	**TRIM**	**WARN**	**PUSH**	**TRIM**	**WARN**	**PUSH**	**TRIM**	**WARN**	**PUSH**
18000	111	-	-	-	-	-	-	-	-	-	-
17500	110	-	-	-	-	-	-	-	-	-	-
17000	108	131	146	-	107	126	-	93	120	-	89
16500	106	129	144	-	106	125	-	92	119	-	88
16000	104	127	143	115	105	123	101	91	118	91	87
15500	103	125	140	113	103	120	99	89	115	89	85
15000	101	123	139	111	102	119	97	88	113	88	84
14500	100	121	136	109	100	118	96	87	111	86	82
14000	99	119	134	107	99	115	94	85	109	85	81
13500	99	118	132	104	97	113	91	84	106	84	79
13000	99	115	129	102	95	111	90	82	105	82	78
12500	99	113	126	100	93	109	88	81	102	81	76
12000	99	110	123	98	91	106	86	79	99	79	74
11500	99	108	120	95	89	104	85	77	97	77	72
11000	99	106	118	94	87	102	83	76	94	76	70
10500	99	103	115	92	85	99	81	74	91	74	68
10000	99	101	112	90	83	97	80	72	88	73	66

Tolerance ± 3 knots (Warning and Push)

With the AOA advance ON; 15 flap stall warning speeds are increased by 10 knots.

TABLE 2

ATR 42 - P+W 121 POWERS

GO AROUND TORQUE % - 100% PROPELLER RPM

	ALTITUDE FEET							
TAT °C	**1000**	**2000**	**3000**	**4000**	**5000**	**6000**	**7000**	**8000**
-28								
-4								100.0
-2								98.8
-1								97.7
+1							100.0	96.8
+2							99.8	95.9
+4							98.9	95.1
+6							97.9	94.1
+8	100% TORQUE					100.0	96.9	93.1
+9	IN THIS AREA					99.3	95.4	91.7
+11					100.0	97.6	93.8	90.2
+13					99.9	96.0	92.3	88.7
+15					98.1	94.3	90.7	87.1
+17				100.0	96.3	92.6	89.0	85.5
+18				98.5	94.6	90.9	87.4	84.0
+20			100.0	96.7	92.8	89.2	85.8	82.4
+22			98.9	94.7	90.9	87.4	84.0	80.7
+24		100.0	96.7	92.6	88.9	85.5	82.1	78.9
+25		98.6	94.5	90.5	86.9	83.5	80.2	77.1
+27	100.0	96.1	92.2	88.3	84.7	81.4	78.3	75.2
+29	97.7	93.9	90.0	86.2	82.7	79.5	76.4	73.5
+31	96.0	92.2	88.4	84.6	81.2	78.1	75.1	72.1
+33	94.0	90.3	86.5	82.9	79.5	76.5	73.5	70.6
+35	91.8	88.2	84.5	81.0	77.7	74.7	71.8	69

TABLE 3

ATR 42 - P+W 121 POWERS

MAXIMUM CONTINUOUS TORQUE % - 100% PROPELLER RPM

	ALTITUDE FEET					
TAT °C	**2000**	**4000**	**6000**	**8000**	**10000**	**12000**
-25	90.5	90.5	90.5	90.5	90.5	90.5
-22	90.5	90.5	90.5	90.5	90.5	90.5
-18	90.5	90.5	90.5	90.5	90.5	90.5
-15	90.5	90.5	90.5	90.5	90.5	89.3
-12						87.6
-9		90.5 TORQUE				86.0
-6		IN THIS AREA			90.5	84.1
-2					89.0	82.0
+1					86.4	79.6
+4				90.5	83.7	77.1
+8				87.6	80.8	74.4
+11			90.5	84.6	78.0	71.8
+15			89.3	81.8	75.3	69.4
+18		90.5	85.9	78.7	72.5	66.8
+22		89.8	82.3	75.4	69.5	63.9
+26	90.5	85.9	78.7	72.1	66.4	61.1
+29	89.2	82.0	75.1	68.8	63.4	58.4
+32	84.9	78.0	71.5	65.5	60.4	55.6

TABLE 4

ATR 42 - P+W 120 POWERS

GO AROUND TORQUE % - 100% PROPELLER RPM

	ALTITUDE FEET							
TAT °C	**1000**	**2000**	**3000**	**4000**	**5000**	**6000**	**7000**	**8000**
-28								
-4								
-2								100.0
-1								99.6
+1								98.4
+2								97.3
+4							100.0	96.1
+6							99.2	94.8
+8	100% TORQUE						97.8	93.6
+9	IN THIS AREA					100.0	96.5	92.3
+11						99.5	95.2	91.1
+13						97.9	93.6	89.6
+15					100.0	96.0	91.9	87.9
+17					98.4	94.2	90.2	86.2
+18				100.0	96.5	92.4	88.4	84.6
+20				98.8	94.7	90.6	86.7	83.0
+22			100.0	96.8	92.8	88.9	85.0	81.3
+24			98.9	94.9	91.0	87.1	83.4	79.7
+26		100.0	96.9	93.0	89.1	85.4	81.7	78.1
+27		98.8	94.9	91.1	87.3	83.6	80.0	76.5
+29	100.0	96.8	92.9	89.2	85.5	81.9	78.4	74.9
+31	98.5	94.7	91.0	87.4	83.7	80.2	76.7	73.4
+33	96.3	92.6	88.9	85.4	81.8	78.4	75.0	71.7
+35	94.0	90.5	86.9	83.4	79.9	76.5	73.2	

TABLE 5

ATR 42 - P+W 120 POWERS

MAXIMUM CONTINUOUS TORQUE % - 100% PROPELLER RPM

	ALTITUDE FEET					
TAT °C	**2000**	**4000**	**6000**	**8000**	**10000**	**12000**
-25						
-22						
-18						
-15						
-12						85.0
-9		85.0 TORQUE				83.7
-6		IN THIS AREA				81.6
-2					85.0	79.5
+1					84.0	77.4
+4					81.8	75.3
+8				85.0	78.5	72.3
+11			85.0	81.1	74.8	68.9
+15			84.5	78.1	72.0	66.3
+18		85.0	81.3	75.1	69.2	63.8
+22		84.5	78.1	72.1	65	61.3
+26	85.0	81.1	75.0	69.2	63.9	58.8
+29	84.4	77.8	71.9	66.4	61.2	
+32	80.9	74.6	68.9	63.6		