

CHECK FLIGHT CERTIFICATE



Friendship F27

CFS 94 Issue 1

Registration:

Date:	Crew:	Observer:
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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	-60	-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

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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 airtests may conduct the test.

General notes on test conduct can be found in the CAA Handbook for Airworthiness Flight Testing.

This sheet replaces any flight test 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 Handbook for Airworthiness Flight Testing.

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 airtests on the 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 an airtest 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



FOKKER F27 FRIENDSHIP

No 94 Issue 1 July 2006

GENERAL

INTRODUCTION

This schedule is applicable to the Fokker F27 aircraft. It is based on the assumption that the everyday operation of the aircraft serves as a continuous check on the functioning of all normal services. On these test 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.

PASSENGERS

Commanders are reminded that it is illegal to carry passengers on a test 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.

OXYGEN

Oxygen shall be available for all persons on board.

TEST 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.

LOADING AND CALCULATION OF WEIGHT

Aircraft are to be loaded to a weight of approximately 14,500 kg (32,000 lb) and a mid cg. Provision must be made for the calculation of aircraft weight throughout the flight.

Where specific tests require the aircraft weight to be recorded, it shall be calculated from the "fuel gone" indicators.

TEST DATA

INTRODUCTION

Due to the different layout of certain parts of the F27 Flight Manual the following notes have been prepared to assist in making the comparison of measured and scheduled gross climb performance for Check Flight Schedule No 94. This applies to F27 Series fitted with RR Dart Mk 528-7E engines, see Fig III-3A*, Fig III-88* and Fig III-92* of that Flight Manual.

WEIGHT (Item 1.4 in the Schedule)

The weight for the test flight should be about 14,500 kg (32,000 lb) so that the WAT limit is not likely to be exceeded when the climbs are measured. This is only required to keep within the range of conditions covered in the gross performance data.

SECOND SEGMENT CLIMB (Item 3 in the Schedule)

- 2.3.1 The take-off safety speed (TOSS) for the Second Segment Climb is the V_2 min speed which should vary with altitude as given in Fig III-3A* in the Flight Manual.
- 2.3.2 During the test flight it is suggested that the speed corresponding to the starting height for the Second Segment Climb should be used. The starting height for the climb will correspond approximately to the "Airport Altitude".
- 2.3.3 From the measured data, the "Airport Altitude" entry points for Fig III-88* in the Flight Manual should be taken as the mean test altitude minus 400 ft, eg for the mean test altitude of 2,900 ft the corresponding "Airport Altitude" is $2,900 - 400 = 2,500$ ft.

FOURTH SEGMENT CLIMB (Item 4 in the Schedule)

The "Airport Altitude" entry point for Fig III-92* in the Flight Manual should be taken as the mean test altitude minus 1,500 ft, eg for a mean test altitude of 5,000 ft the corresponding "Airport Altitude" is $5,000 - 1,500 = 3,500$ ft.

*The Figure numbers quoted above are correct for aircraft currently on the UK Register. Different Figure numbers may be applicable to other aircraft.

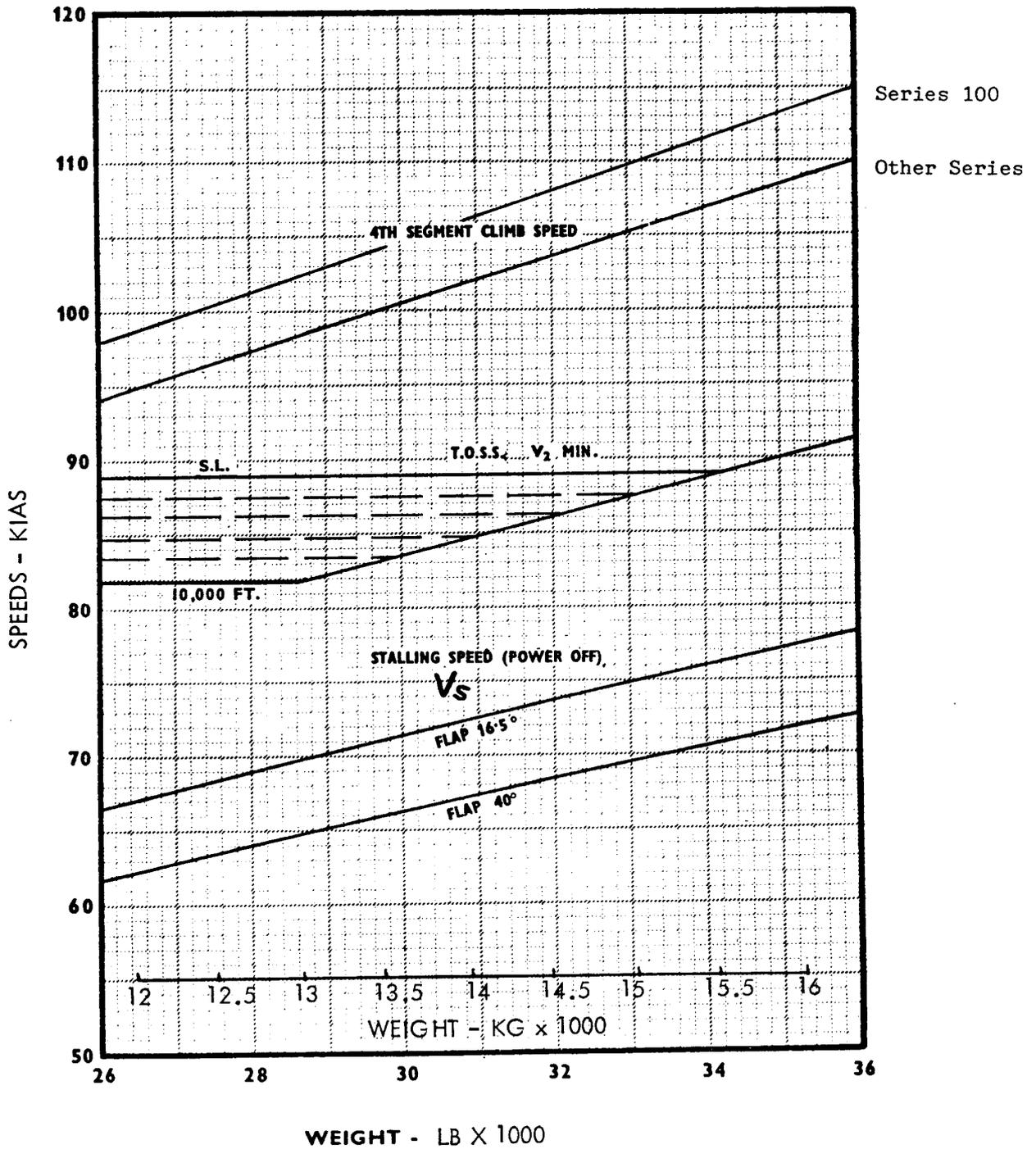
In the case of aircraft serial numbers 10323, 10325 and 10316 the appropriate Figure numbers are:

For 'Fig III-3A' read 'graph No 13' on page III-65.
For 'Fig III-88' read 'graph No 70' on page III-253.
For 'Fig III-92' read 'graph No 73' on page III-259.

GRAPH OF STANDARD SPEEDS

Acceptable Tolerances : Stall Speeds: \pm 3 KIAS

Stick Shaker: Actual Stall Speed plus 5 to plus 10 KIAS



1 PREFLIGHT INFORMATION

1.1 General

REGISTRATION		DATE	
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1.2 Engine and Airframe

Total airframe hours

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Record:

	Port	Starboard
SERIAL NO.		
HOURS RUN		

1.3 Loading

Zero Fuel Weight	<table border="1"><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr></table>				
Fuel					
Ramp Weight					
Centre of Gravity					

1.4 Times

Off Chocks	<table border="1"><tr><td></td></tr></table>		Take-off	<table border="1"><tr><td></td></tr></table>	
On Chocks	<table border="1"><tr><td></td></tr></table>		Land	<table border="1"><tr><td></td></tr></table>	
Chocks Time	<table border="1"><tr><td></td></tr></table>		Airborne	<table border="1"><tr><td></td></tr></table>	

2. TAKE-OFF

Carry out a normal take-off.

Record any unusual characteristics.

After take-off select maximum cabin altitude and a high rate

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3. TAKE-OFF CLIMB

5,000 ft AGL to FL 100

After completing the preparatory work detailed below, carry out a 5 minute engine-out take-off climb and record the results on the climb data sheet. The climb should be made on a constant heading, clear of cloud, turbulence, wave effects and inversions.

Before commencing the test climb a normal two engine climb to approximately 12,000 ft is to be carried out to check cabin altitude warning and to note the ambient temperature every 500 ft to 10,000 ft. Using the temperature information recorded select a starting height in the climb which avoids temperature inversions in the climb, which starts above 5000 ft above terrain and which allows completion of the climb before 10,000 ft.

ALTITUDE	50	55	60	65	70	75	80	85	90	95	100
TEMPERATURE											

Towards the end of the climb note the altitude at which the cabin altitude warning light illuminates (10,000 ± 500 ft).

Reset pressurization to a cabin altitude of 1000 ft.

On the completion of the above descend to the test selected starting height , with the test engine set to zero thrust (40 psi torque) for not less than five minutes. The end of this five minute period should be made to coincide, as near as possible, with arrival at the selected test starting height so that the other engine may be feathered and the test climb commenced without delay. Feathering time should be recorded.

Climb conditions:

- pressurization on
- engine and propeller de-icing off
- gear up, flaps 16½°
- No 2 feathered
- No 1 at maximum take-off power within placard limitations, water methanol on (except off for 100 Series). Fuel trim must be set by computer for conditions when commencing climb, and not increased thereafter.
- take-off safety speed for weight and altitude (see page at front of schedule)
- bank angle up to 5° towards the live engine
- Captain's altimeter set to 1013 mb

At the end of a wet take-off power climb check water methanol cross-feed by contents gauges if fitted. If no gauges are fitted check cross-feed by pulling the No 1 engine water methanol pump circuit breaker (EB 1504 on the panel behind the co-pilot's seat), confirming that both water methanol switches are ON and that the No 1 green light remains illuminated. Reset the circuit breaker.

Time to feather No.2 (4 sec approx.)

SECOND SEGMENT TAKE-OFF CLIMB DATA SHEET

	Start of Climb	End of Climb
Ramp Weight	kg	kg
Fuel Gone	kg	kg
Water-methanol contents	kg	kg
Aircraft Weight	kg	kg

TIME	ALTIMETER	ASI (P1)	IOAT	TORQUE (PSI)
0				
0.5				
1.0				
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

Flight Data

V2 kts

Bank Angle
 Heading

Trim Positions

Elevator
 Aileron
 Rudder

Airspeed Comparison kts kts

Engine Data at 3 Min

Torque	<input type="text"/>	Fuel Flow	<input type="text"/>
RPM	<input type="text"/>	Oil Pressure	<input type="text"/>
TGT	<input type="text"/>	Oil Temperature	<input type="text"/>

Climb Conditions

Time to unfeather No.2 during relight to 8500 rpm (14 sec. approx.)

4. FOURTH SEGMENT CLIMB

5,000 ft AGL to FL 100

Carry out an engine-out fourth segment climb, recording the results for five minutes; the climb should be made on a constant heading, clear of cloud, turbulence, wave effects and inversions. Commence the climb from any convenient flight level, but not below 5,000 ft above terrain.

Climb Conditions:

- pressurization on
- engine and propeller de-icing off
- gear up, flaps up
- No 1 feathered
- No 2 at maximum continuous power adjusting fuel trimmer continuously to maximum TGT or JPT
- Fourth segment Climb speed for weight (see page at front of schedule)
- bank angle of approximately 1° towards the live engine
- Captain's altimeter set to 1013 mb

Complete the climb data sheet.

On completion, relight and unfeather No 1 engine.

Time to feather No.1 (4 sec approx)

FOURTH SEGMENT CLIMB DATA SHEET

	Start of Climb	End of Climb
Ramp Weight	kg	kg
Fuel Gone	kg	kg
Water-methanol contents	kg	kg
Aircraft Weight	kg	kg

TIME	ALTIMETER	ASI (P1)	IOAT	TORQUE (PSI)	TRIM (%)
0					
0.5					
1.0					
1.5					
2.0					
2.5					
3.0					
3.5					
4.0					
4.5					
5.0					

Flight Data

Schedule kts

Bank Angle

Heading

Trim Positions

Elevator

Aileron

Rudder

Airspeed Comparison kts kts

Engine Data at 3 Min

Torque
RPM
TGT

Fuel Flow
Oil Pressure
Oil Temperature

Climb Conditions

Time to unfeather No.1 during relight to 8500 rpm (14 sec. approx.) sec

5. HANDLING

AT OR ABOVE FL 100

5.1 Aircraft Trim, Controls and Trimmers

Set maximum cabin differential pressure until completion of item 5.2.

Under a typical cruise condition trim the aircraft accurately about all three axes and record the three trimmer readings.

Record all engine instrument readings in the settled cruise condition; also, altitude, airspeed and outside air temperature.

Check controls for backlash, break-out force, centring, weight and response.

Check trimmers for backlash, friction and response.

	PORT	STBD
IAS		
ALT		
IOAT		
RPM		
TGT		
TORQUE		
OIL TEMP		
OIL PRESS		
FUEL TRIM		
FUEL FLOW		

Trim Positions

Aileron	
Rudder	
Elevator	

Trim Control Assessment

Aileron	SAT/UNSAT
Rudder	SAT/UNSAT
Elevator	SAT/UNSAT

CONTROL ASSESSMENT

Aileron	SAT/UNSAT
Rudder	SAT/UNSAT
Elevator	SAT/UNSAT

5.2 CABIN COMPRESSORS

Check and record in the following sequence:

- Cabin Differential with both spill valves shut

	psi
--	-----

Open No.1 spill valve.

- Cabin diff pressure on No.2 (4.1 psi approx)

	psi
--	-----

Shut No. 1 spill valve, open No. 2 spill valve

- Cabin diff pressure on No.1 (4.1 psi approx)

	psi
--	-----

Shut No. 2 spill valve

5.3 MANUAL CONTROL OF PRESSURISATION

Check manual control of pressurization system.

SAT/UNSAT

6. MAXIMUM SPEED TEST

From a trimmed cruise increase the speed progressively to V_{NE} with HP cocks selected open and check:

- controls over small angles for weight and response

CONTROLS ASSESSMENT

Aileron	SAT/UNSAT
Rudder	SAT/UNSAT
Elevator	SAT/UNSAT

- general airframe, engine and propeller behaviour.

Airframe	SAT/UNSAT
Engine	SAT/UNSAT
Propeller	SAT/UNSAT

HP cocks select locked out when appropriate.

7. STALLING

ABOVE 6000 FT AGL

Trim the aircraft at about 40% above the scheduled stall speed, (see page at front of schedule). The trim speed will equate to about 30 KIAS above the scheduled stalling speed. Reduce speed at a rate of 1 kt per second to the stall in the following configurations:-

1. Gear up, flaps 16½°, power idle.

Ramp Weight		Trim Speed (1.4 V _S)	
Fuel/Water - methanol GONE		Elevators Trim	
Aircraft Weight			

	Stall Warning	Stall Speed
Scheduled Speeds	-----	
Actual Speeds		
Margin (Minimum margin 5 KIAS)		

Stall Characteristics

2. Gear down, flaps 40°, power idle

Ramp Weight		Trim Speed (1.4 V _S)	
Fuel/Water - methanol GONE		Elevators Trim	
Aircraft Weight			

	Stall Warning	Stall Speed
Scheduled Speeds	-----	
Actual Speeds		
Margin (Minimum margin 5 KIAS)		

Stall Characteristics

8. FUNCTIONING

8.1 De-icing

Check satisfactory functioning of the following

Windscreen Heating	SAT/UNSAT
Airframe Deicing	SAT/UNSAT
Engine Intake Deicing System	SAT/UNSAT

De-ice boots:

Record Suction (2-9" Hg)	<input type="text"/>	Pressure (15-20 psi)	<input type="text"/>
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8.2 Gear and Flap Operating Times

Landing gear extension (16 secs. approx.) at 150 KIAS	<input type="text"/> sec	SAT/UNSAT
Flap extension 0 to 16.5° (6 secs. approx.) at 140 KIAS	<input type="text"/> sec	SAT/UNSAT
Flap extension to 40° (9 secs. approx.) at 126 KIAS	<input type="text"/> sec	SAT/UNSAT
Landing gear retraction (7 secs. approx.) at 100 KIAS	<input type="text"/> sec	SAT/UNSAT
Flap retraction to 0° (13 secs. approx.) at 110 KIAS	<input type="text"/> sec	SAT/UNSAT

8.3 Gear Emergency Extension

Extend landing gear on emergency system Put L/G handle down and restore emergency control to normal position Retract Landing gear.	SAT/UNSAT
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8.4 Flap Emergency Extension

Extend the flaps to 16½° using the emergency system.
Use check list procedures. Ensure that flap control CB is pulled at all times when manual control handle is connected.

SAT/UNSAT

8.5 Alternate Static Source

At 100 KIAS, landing gear down and flap 26°, select alternate static source:

Change to ASI reading (8 kts max error)

Change to Altimeter reading (150 ft max error)

CAPT.	CO-PILOT

9. LANDING

Carry out a normal landing. Delay selection of ground fine pitch to confirm operation of warning horn at 55 KIAS.

SAT/UNSAT

Keep close watch on TGTs which will start rising about 30 secs. after landing if FFPS not withdrawn before this time.

10. POST-FLIGHT ACTIONS

10.1 Placards

Check all cockpit placards and warning notices for presence, accuracy and legibility.

SAT/UNSAT

10.2 Check all filaments are working correctly in cockpit switchlights

SAT/UNSAT

10.3 Complete the statement of defects and sign the Flight Test Certificate and state whether or not the aeroplane needs to be reflowed.

10.4 Plot the results of the performance climbs and compare the measured rates of climb with the gross data scheduled in Flight Manual.

10.5 Pass the completed Check Flight Schedule and Certificate to the Surveyor-in-Charge of the CAA Area Office.