CHECK FLIGHT CERTIFICATE

Douglas DC-6A and DC-6B
(Pratt and Whitney Double Wasp)

CFS 66 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	-120	-120	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

Pilots using this document should be familiar with the tests and techniques needed. If the results are to be submitted to the CAA the pilot must be specifically approved by the CAA.
Reg: Enter the aircraft registration mark. If the aircraft is not on the UK register, add the manufacturers serial number and expected UK registration (if known).
Pilot: Captain and co-pilot (where applicable).
Airfield: Departure airfield.
Start Weight: Actual all up weight at 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

Climb: Enter in these columns data from the climb.
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.
Margin: The difference between the Scheduled and Achieved rates of climb (negative if achieved is lower than scheduled).
Permitted Margin: The maximum allowable difference between the Scheduled and Achieved rates of climb.

Defects

Enter all defects from the flight.
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. Items requiring rectification 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'.

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.

CHECK FLIGHT SCHEDULE

Douglas DC-6A and DC-6B (Pratt and Whitney Double Wasp)	CFS No. 66 Issue 1

Registration		Test Dates	

1 INTRODUCTION

This schedule is applicable only to DC-6 aircraft. It is based on the assumption that the aircraft under test fully incorporates all the Modifications which may be required for UK type certification and it is essential in the interests of flight safety that no attempt be made to test an aircraft to this schedule if it is not so compliant. The tests are intended to cover items, including emergency systems, which are not routinely checked; however, the crew are expected generally to monitor the behaviour of all equipment and report any unserviceable items. In addition to noting items arising directly from tests in the schedule, any other characteristics which are considered unsafe or undesirable must be recorded.

The aircraft and its engines must be operated at all times within its Flight Manual limitations. Unless specified in this Schedule, normal operating procedures and checks should be used.

The minimum flight crew for this test should, whenever possible, be increased by one observer to record the results of the tests. When tests are scheduled above FL100, oxygen shall be available for all persons on board. The tests should be carried out in the sequence as written; altitude conditions must be observed.

Aircraft commanders are reminded that it is illegal to carry passengers on a test flight without a Certificate of Airworthiness in force except persons performing duties in the aircraft in connection with the flight. While it is legal to carry passengers on a test flight made with a valid Certificate of Airworthiness, the practice is not recommended. If passengers are carried, they must be informed that the risk is greater than that on a normal scheduled 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 current Flight Manual is over-riding.

The crew of the aircraft must be familiar with the contents of this schedule and the techniques needed before flight. If the results are to be submitted to the CAA the pilot must be specifically briefed by the CAA for Check Flights on DC 6 aircraft.

LOADING

The aircraft should be loaded with to a weight between 320,000 lb and 335,000 lb (145,000 – 152,000 kgs) with any convenient c.g. within normal limits.

PRE FLIGHT ACTION

If passenger oxygen masks are fitted and are to be deployed, it is acceptable to prevent their complete deployment by the use of appropriate clips or tape; any such mechanism must, however, allow sufficient movement to verify correct functioning of the system.

POST FLIGHT ACTION

The Check Flight Report and Check Flight Certificate must be completed and signed by the pilot carrying out the test.

WARNING

1. It is illegal to carry passengers on a test flight made without a Certificate of Airworthiness in force except persons performing duties in the aircraft in connection with the flight. Although it may be legal to carry passengers on a test flight with a Certification of Airworthiness in force it is strongly recommended, for Check Flights and other tests entailing greater risk than normal flight, that:

   1) It is preferable to use ballast, and

   2) Before accepting any passengers on a test flight the pilot in command should inform them that the risk is greater than on an ordinary flight.

2. Under no circumstances are the limitations contained in the CAA approved Flight Manual to be exceeded.

3. If a clipboard or kneeboard is used to record the results there is a possibility of fouling the controls especially the duals, if fitted. To reduce this possibility, the pilot must have briefed the observer on the need to ensure that the clipboard is well clear of the controls especially during manoeuvres requiring large control deflections such as low speed envelope and autorotation. The pilot should monitor the position of the clipboard during the flight to ensure that it is not in a potentially hazardous position. Whenever possible, flexible, rather than rigid, clipboards should be used. Consideration should be given to removing the dual controls if flying with an inexperienced observer.

It is recommended that the tests are made in the sequence given. The results are to be written in ink in the spaces provided.

Aerodrome pressure altitude			QFE/QNH		
Wind velocity/direction			Ground Temp		
Weather					
Take-off time			Landing Time		

PRE-FLIGHT INFORMATION

Record:

AUW	lb (90,000 lb)	C of G (% MAC)	
Total A/F Hours	hrs	TAT	°C
Aerodrome Height	ft	QFE	
Engine type			

POSITION	ENGINE S/NO.	HRS RUN
No. 1		
No. 2		
No. 3		
No. 4		

Total fuel tanks contents		Kg/gallons
Total oil tanks contents		gallons

2 TAKE-OFF

Carry out a normal take-off, using Water-Alcohol injection.

Temperature:	
Pressure:	
Runway Heading:	
Windspeed & Direction:	
Time from brakes off to unstick:	seconds
Unstick speed:	Kts
Any unusual characteristics:	

3 PERFORMANCE

The climb should not be carried out in cloud or turbulent air; a steady heading should be maintained throughout; altitude readings should be taken from an altimeter set to 1013.2 mb. Before starting to record the climb performance the aeroplane should be stabilised at the correct climb speed with the appropriate power set and with all control loads trimmed out as far as possible. Fuel should be balanced during and after the climb and satisfactory functioning of the crossfeed system should be recorded.

a) Engine Out Take-Off Climb

Starting at an altitude of between 2000 and 4000 feet (**not below 3000 feet AGL**), carry out a climb for 2 minutes under the following conditions:

Airspeed	– V2 appropriate to weight
No. 1 Engine	– Propeller feathered – Cooling gills to be set at –4 degrees
Nos. 2/3/4 Engines	– Cooling gills to be set at +4 degrees with spinners and +3 degrees without spinners. Maximum dry take-off power: **R2800 - CB-16 engines** (2700 rpm & 55” Hg MP at SL, reducing linearly to 53” at 6900’ FTH) **R2800 - CB-17 engines** (2800 rpm & 60” Hg MP at SL, reducing linearly to 59” Hg at 5200' FTH)
Pressurisation	– On. One blower only (If applicable)
Undercarriage	– Retracted
Flaps	– 20 degrees

Time to feather No. 1 propeller:	seconds
Aircraft weight at commencement of climb:	

TIME	ALTITUDE	OAT
0		
0.30		
1.00		
1.30		
2.00		

Towards the end of the climb, record the following:

Trimmers	Aileron:	Rudder:	Elevator:
Turbulence	Nil / Slight / Fair / Very	Rudder buffeting	

Eng	BMEP	MP	RPM	CHT	FUEL PRES	FUEL FLOW	OIL PRES	OIL TEMP	CARB AIR TEMP
No. 2									
No. 3									
No. 4									

Cross feed system:		Aircraft weight at finish of climb:	

b) Engine Out En-Route Climb

Starting at an altitude of between 2000 and 4000 feet, carry out a climb for 5 minutes under the following conditions:

Airspeed	– 139 knots (CB - 16 engines) – 156 knots (CB - 17 engines)
No. 1 Engine	– Propeller feathered – Cooling gills to be set at –4 degrees.
Nos. 2/3/4 Engines	– Maximum continuous power : **R2800 - CB-16 engines** (2600 rpm & 48.5” Hg MP at SL, reducing linearly to 46.5” at 7100’ FTH) Cooling gills to be set at +4 degrees with or without spinners. **R2800 - CB-17 engines** (2600 rpm & 51.5” Hg MP at SL, reducing linearly to 50.0” at 9200’ FTH) Cooling gills to be set to zero degrees.
Pressurisation	– On. One blower only (If applicable)
Undercarriage	– Retracted
Flaps	– Up

Aircraft weight at commencement of climb: _____

TIME	ALTITUDE	OAT
0		
0.30		
1.00		
1.30		
2.00		
2.30		
3.00		
3.30		
4.00		
4.30		
5.00		

Towards the end of the climb, record the following:

Trimmers	Aileron:	Rudder:	Elevator:
Turbulence	Nil / Slight / Fair / Very	Rudder buffeting	

Eng	BMEP	MP	RPM	CHT	FUEL PRES	FUEL FLOW	OIL PRES	OIL TEMP	CARB AIR TEMP
No. 1									
No. 2									
No. 3									
No. 4									

Cross feed system:	
Aircraft weight at finish of climb:	
Time to unfeather No. 1 propeller to 1200 rpm:	

4 FUNCTION CHECKS

a) Gear Extension – Free Fall

Time satisfactory free fall:	Seconds

b) Flap emergency Extension

Time satisfactory extension of flaps from 0-20 degrees using the emergency pump:	Seconds

c) Emergency Electrical System

Check operation:	

d) Fuel Dumping

Check operation:	

e) Windscreen De-Icing

Check flow and distribution:	

f) Pressurisation and Air Conditioning

Cabin pressure relief valve:	
Manual pressurisation controls:	

De-Clutching and re-engaging both cabin blowers and maintenance of cabin pressure on each in turn (To be carried out in conjunction with 3.g)

No. 1:	No. 4:
Manual Temperature Control:	
Emergency Heater Back-Out Switch:	

g) Propellers

Record the time to feather and unfeather to 1200 rpm on each propeller in turn.

	FEATHER	UNFEATHER
No. 1 (From Climb Figures)	secs	secs
No. 2	secs	secs
No. 3	secs	secs
No. 4	secs	secs

h) Engine Acceleration

At a representative approach speed accelerate each engine in turn to full dry power and check that response is normal with no overspeeding.

No. 1	
No. 2	
No. 3	
No. 4	

5 HANDLING

a) Cruise

At 10000 feet, under typical cruise conditions, trim the aircraft accurately around all three axes and record the trimmer readings:

Aileron:	Rudder:	Elevator:

Check the ailerons and elevators for backlash, weight and response. Check the rudder for the same qualities over small angles.

Aileron:	Rudder:	Elevator:

Check all trimmers over moderate angles for friction, response and backlash.

Aileron:	Rudder:	Elevator:

Check and record the following instrument readings:

Eng	BMEP	MP	RPM	CHT	FUEL PRES	FUEL FLOW	OIL PRES	OIL TEMP	CARB AIR TEMP
No. 1									
No. 2									
No. 3									
No. 4									

	NORMAL SOURCE	ALTERNATE SOURCE SELECTED
Altitude	Ft	Ft
Airspeed	IAS	IAS
OAT		

b) Stalling

i) Gear Up, Flaps 20 Degrees, Power Off

Time – Flaps Up to 20 degrees	Seconds

Trim the aircraft at about 40% above the scheduled stall speed and reduce speed slowly until the aircraft stalls.

Aircraft Weight	lb	Natural Buffet Speed	Kts
Indicated Stall Speed	Kts	Scheduled Stall Speed	Kts
Stall Characteristics:			

ii) Gear Down, Flaps Fully down, Power Off

Time – Gear Down	Seconds
Flaps 20-50 Degrees	Seconds

Trim the aircraft at about 40% above the scheduled stall speed and reduce speed slowly until the aircraft stalls.

Aircraft Weight	lb	Natural Buffet Speed	Kts
Indicated Stall Speed	Kts	Scheduled Stall Speed	Kts
Stall Characteristics:			

Time – Flaps 50-20 Degrees	Seconds
Gear Up	Seconds
Flaps 20 Degrees to up	Seconds

c) Maximum Speed Test

From a trimmed cruise, increase speed progressively to Vne (297 Kts below 12000' reducing 5 Kts per 1000' above 12000').

Ailerons and elevators over small angles for weight and response	
General airframe, engine and propeller behaviour	

6. Landing

Carry out a normal landing. Use reverse pitch to 2000 rpm and sufficiently heavy braking, once only, to prove the serviceability of the brakes.

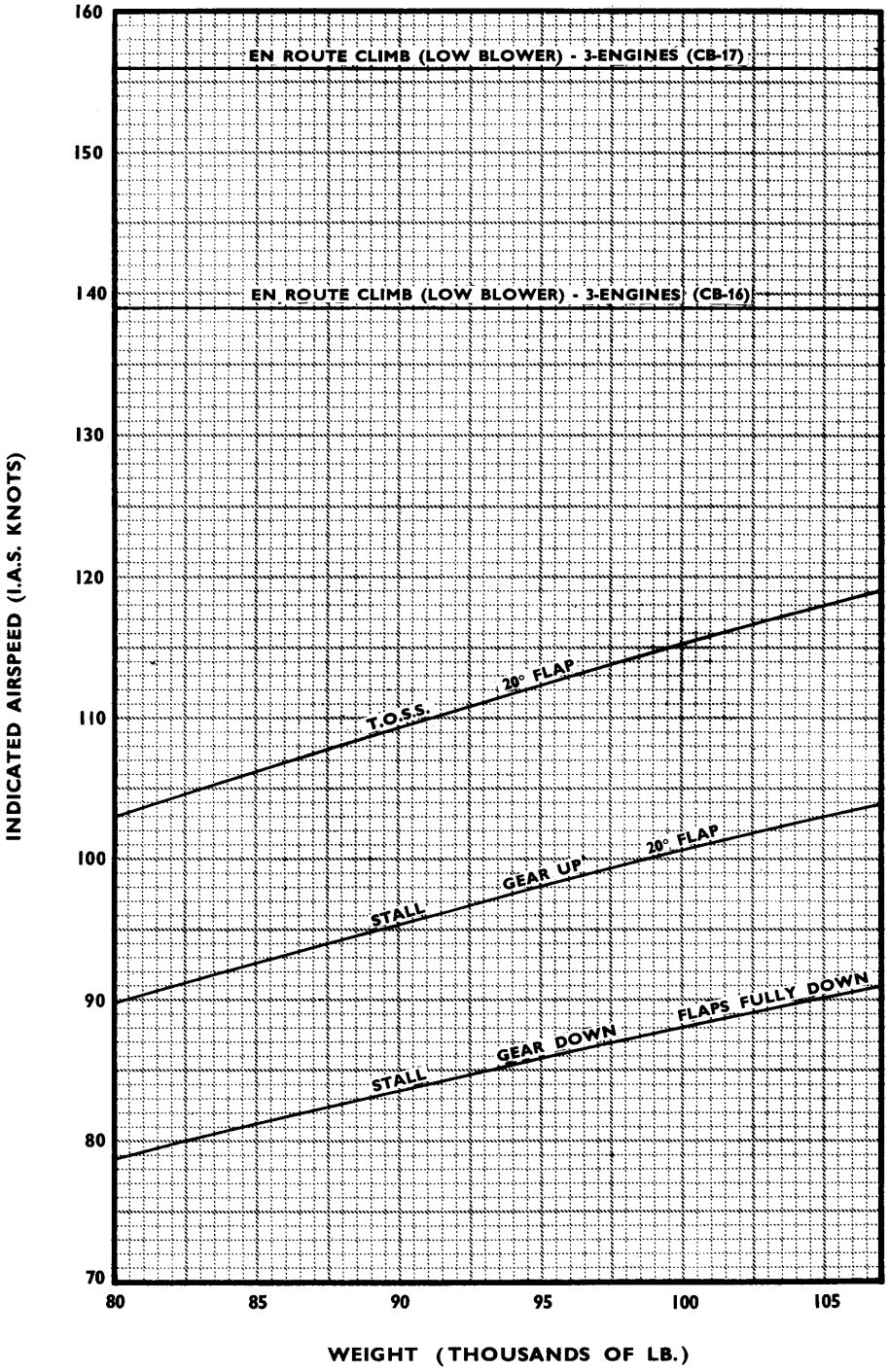
Any abnormal characteristics:	
Landing Weight:	lb
Wheel brake emergency air system:	

Complete the Check Flight Certificate at the front of this document.

DOUGLAS DC- 6A & 6B

(P. & W. R.2800 CB.16 & CB.17)

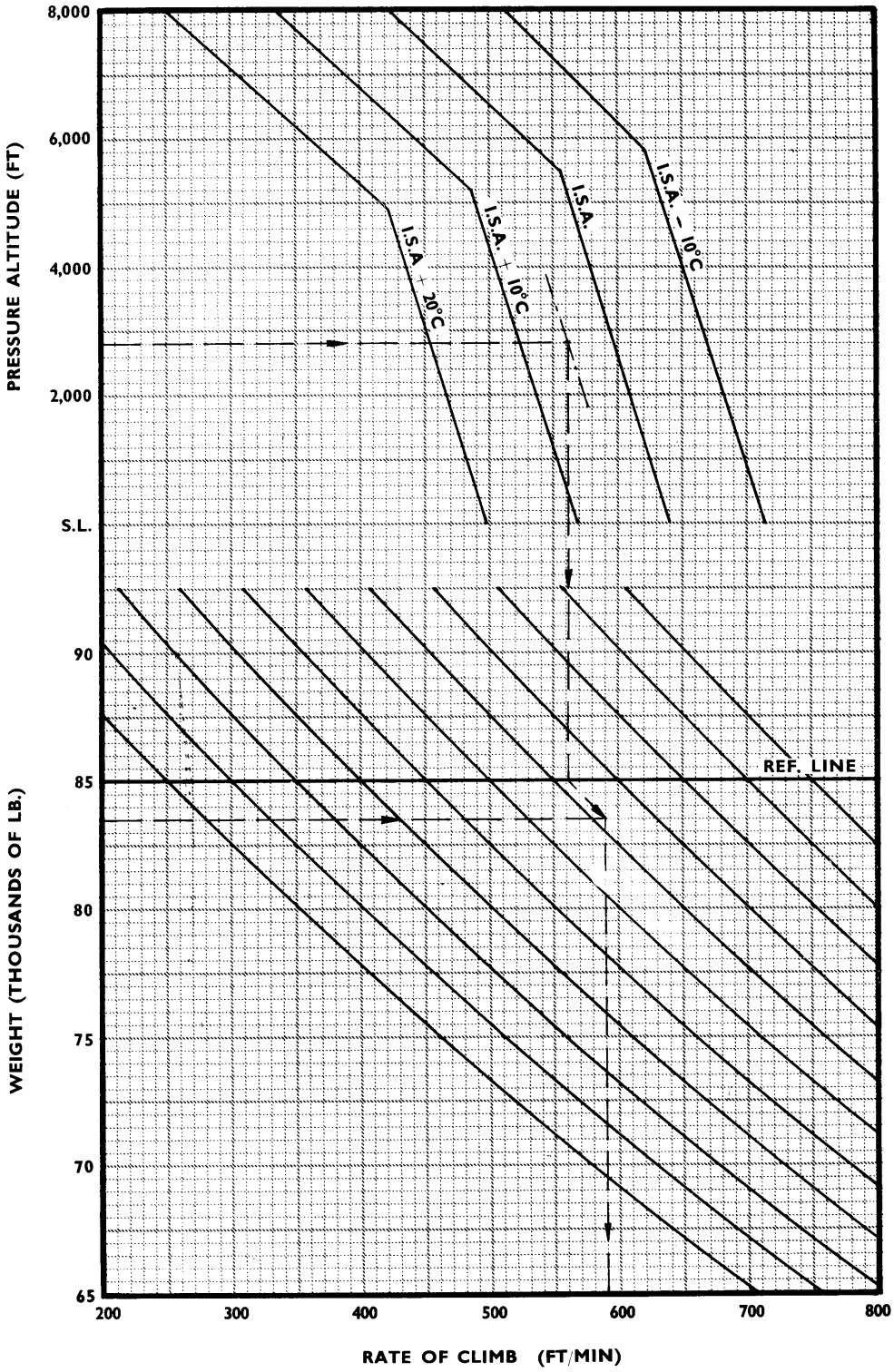
STANDARD SPEEDS V_S WEIGHT



DOUGLAS DC-6A & 6B

(P. & W. R.2800 CB.16)

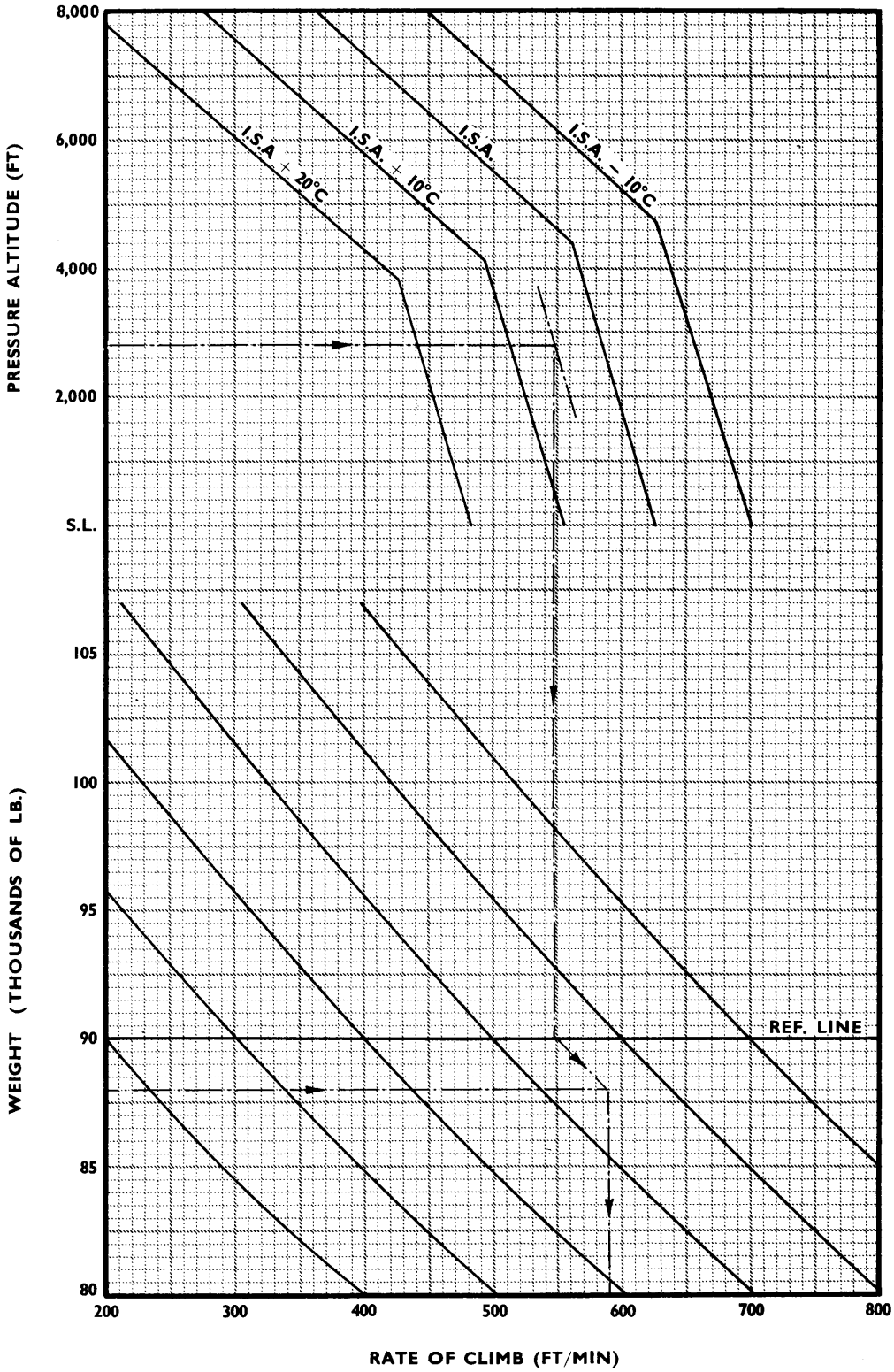
ENGINE OUT TAKE-OFF CLIMB



DOUGLAS DC-6A & 6B

(P. & W. R.2800 CB.17)

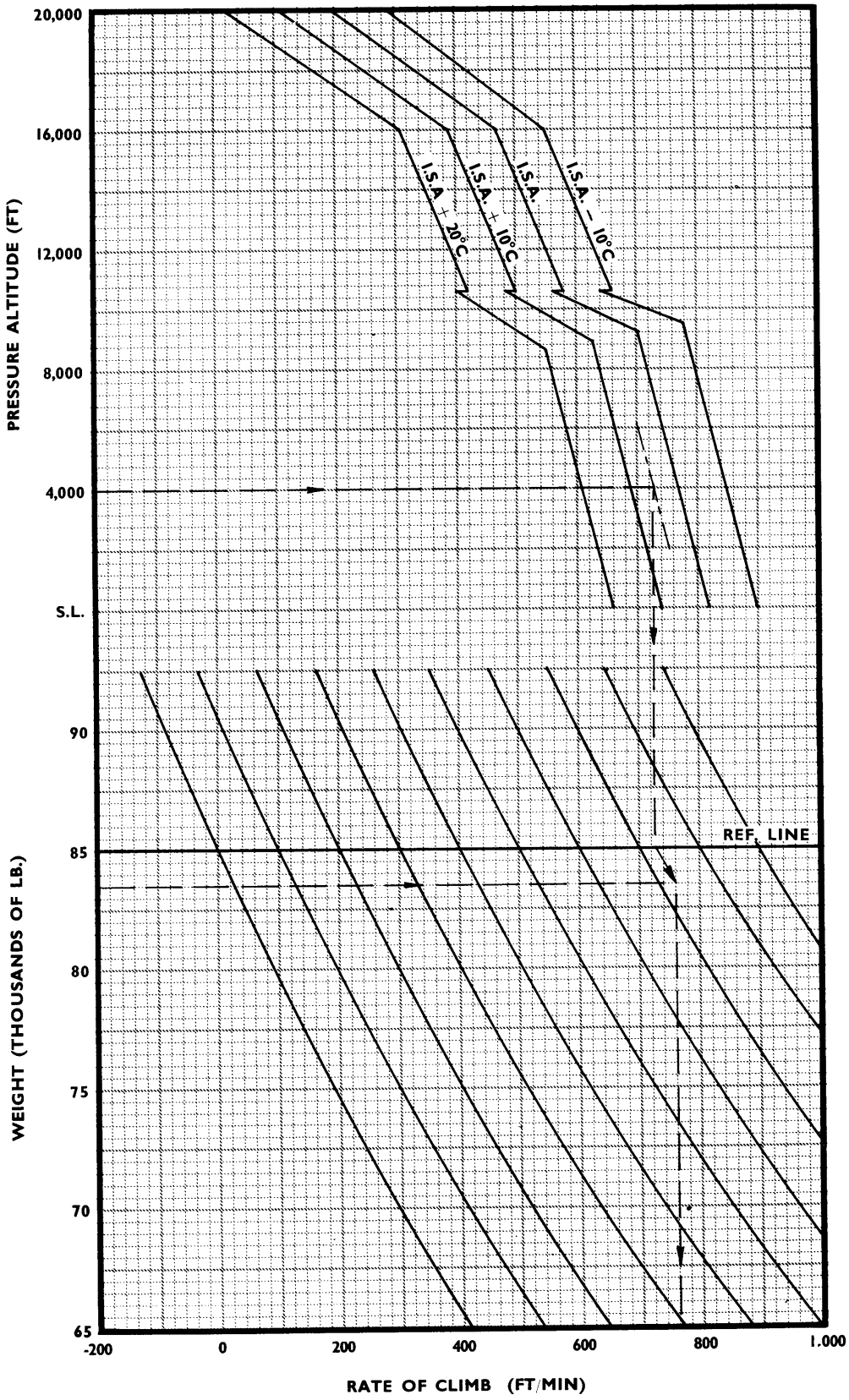
ENGINE OUT TAKE-OFF CLIMB



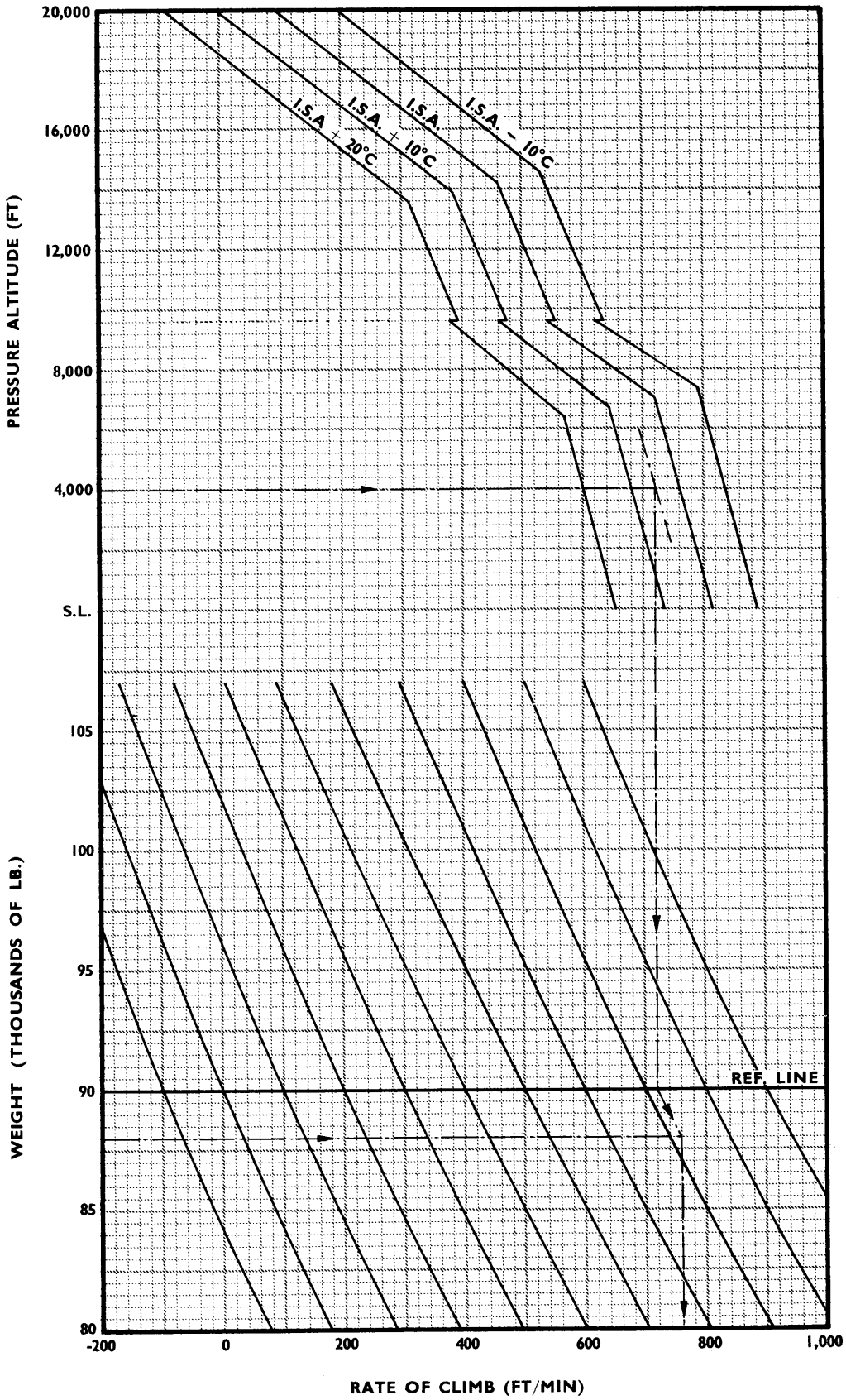
DOUGLAS DC-6A & 6B

(P. & W. R.2800 CB.16)

ENGINE OUT EN-ROUTE CLIMB



DOUGLAS DC-6A & 6B

(P. & W. R.2800 CB.17)

ENGINE OUT EN-ROUTE CLIMB