SECTION 4 - LOADING INFORMATION

CONTENTS

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4.1 LONGITUDINAL C.G. DETERMINATION

Longitudinal c.g. is defined by the distance between the center of gravity and the plane at right angles with the longitudinal datum (materialized by two straight-edge supports) and located at 3m (118.11 in.) in front of the main rotor hub center. A plate secured to the cabin floor fairing carries a cross materializing a point situated at 1m (39.37 in.) from the longitudinal datum.

4.1.1 Weight and balance in empty condition

For each individual aircraft, the weight and Balance Form, chart B, is completed by the manufacturers prior to delivery of the helicopter. The inventory of the aircraft is established prior to actual weighing by checking off in Chart D the items installed in the helicopter.

Chart C enables correcting weight and balance as appropriate whenever the aircraft, upon being weighed, is not in the specified empty weight condition.

Chart A provides a continuous record of changes affecting the empty weight and balance condition resulting from modifications embodied during the life of the aircraft.

On overhaul and in the case of important changes in the configuration of the aircraft, weighing of the aircraft in empty weight condition is recommended.

CAUTION : CHART A "CONTINUOUS HISTORY OF CHANGES AFFECTING WEIGHT AND BALANCE" MUST BE KEPT UP TO DATE AT ALL TIMES.

The C.G. position in empty condition determined by computation or by weighing should be less than 3.27.

The installation of appropriate aircraft ballast plates on the location provided before the copilot's seat makes it possible to move forward the C.G. position when necessary - Select the plates to set the C.G. position to :

3.27 ± 0.01 for empty weight not exceeding 1200 Kg.

3.26 ± 0.01 for empty weight higher than 1200 kg.

4.1.2 C.G. determination with due allowance for variable load items required for a particular operation.

Except for exceptional loading conditions, the c.g limits cannot be exceeded (unless the aircraft is flown with a very light pilot alone on board).

In practice, in the case of an aircraft of which the empty weight c.g location is 3.27 m (128.74 in) from the datum, the limit c.g's are attained in the following conditions, when all fuel has been expended (critical case) :

most rearward c.g 3.15 m (123.62 in) : 77 kg (170 lb) pilot alone on board

C.g located at 3.08 m (121.26 in) : weight of crew : 125 kg (275 lb)

Most forward c.g 2.78 m (109.45 in) : 7 persons weighing 83 kg (180 lb) each on board.

The addition of fuel (c.g : 3.13 m -123.23 in-) has practically no effect on c.g if the aircraft has been loaded to the rearward c.g. limit, but it causes the c.g to shift from the forward limit when the aircraft has been loaded to this limit.

In general, accurate determination of c.g location is not necessary. This is to be done only for test flights and exceptional loading conditions (e.g very heavy material carried in cabin).

4.1.3 C.G. determination

Weights and moments of variable load items are given in chart E. Add these weights and moments to the aircraft empty weight and moment, then find distance of c.g. relative to the datum :

$$\frac{\text{total moment}}{\text{total weight}} = \text{distance of c.g relative to datum}$$

4.2 LATERAL C.G. DETERMINATION

The lateral c.g limits(0.14 m -5.5 in.-to the left and 0.12 m -4.72 in.- to the right of the plane of symmetry) are stated in Section 1 merely for information. In practice, whatever the operating conditions, they cannot normally be attained.

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CHART A - CONTINUOUS HISTORY OF CHANGES AFFECTING WEIGHT AND BALANCE

AIRCRAFT MODEL : ALOUETTE III

Serial n°

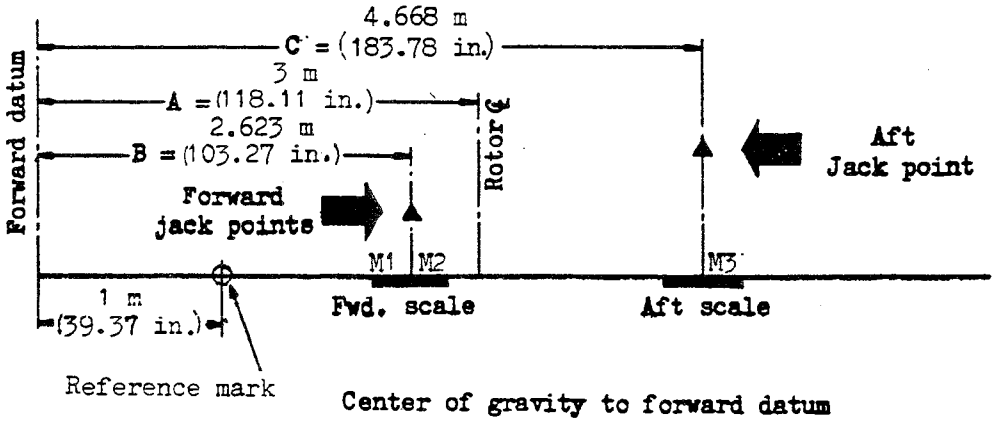
Actual weight	Date	Description of item or modification	WEIGHT AND BALANCE VARIATIONS								
			Weight change				Current total empty aircraft				
			Added (+)		Removed (-)						
			Weight	Moment	Weight	Moment	Weight	Moment	C.G.		
Initially											

C H A R T B

WEIGHT AND BALANCE FORM

AIRCRAFT MODEL : ALOUETTE II Serial No.

Jacking points	Scales No	Scale reading	Tare	Scale error correction	Symbol	Net weight
- Left forward					M1	
- Right forward					M2	
- Aft					M3	
TOTAL WEIGHT					M =	



Center of gravity to forward datum

$$\frac{\text{Moment summation}}{\text{Weight}} = \frac{B\ (M1 + M2) + C \times M3}{M} = \boxed{}$$

CORRECTED WEIGHT AND HORIZONTAL BALANCE

Items added and subtracted	Weight	Dist c.g. to FWD. datum	Moment	
- Aircraft as weighed (M)				
- Plus - see Chart C				
- Minus - see Chart C				
TOTAL				

Enter this data on Chart A

CHART C - CORRECTIONS TO WEIGHT AND BALANCE FORM, CHART B

AIRCRAFT MODEL : ALOUETTE III

Serial n° :

ADD			REMOVE		
Description	Weight	Moment	Description	Weight	Moment

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CHART D

LIST OF EQUIPMENT

TYPE OF AIRCRAFT : ALOUETTE III

METRIC

Serial N°

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
1. FUSELAGE											
Forward cabin door (R.H.)	5.105	1.260	6.432								
" " " (L.H.)	5.105	1.260	6.432								
Sliding door assembly in open position (R.H.)	7.300	3.170	23.141								
" " " " " " (L.H.)	7.300	3.170	23.141								
Sliding door assembly in closed position (R.H.)	7.300	2.120	15.476								
" " " " " " (L.H.)	7.300	2.120	15.476								
Access ladder (R.H.)	1.210	3.410	4.126								
" " (L.H.)	1.210	3.410	4.126								
Baggage hold door assembly (R.H.)	4.400	3.150	13.860								
" " " " (L.H.)	4.400	3.150	13.860								
Ballast : (as required)		0.575									
- Weight : 0 to 28 kg according to equipment installed in order to maintain C G location as specified in paragraph 4.1.1.											

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CHART D
LIST OF EQUIPMENT

TYPE OF AIRCRAFT : ALOUETTE III

ENGLISH

Serial N°

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
1. FUSELAGE											
Forward cabin door (R.H.)	11.24	49.60	557.50								
" " " (L.H.)	11.24	49.60	557.50								
Sliding door assembly in open position (R.H.)	16.09	124.80	2008.83								
" " " " " " (L.H.)	16.09	124.80	2008.83								
Sliding door assembly in closed position (R.H.)	16.09	83.46	1342.87								
" " " " " " (L.H.)	16.09	83.46	1342.87								
Access ladder (R.H.)	2.64	134.25	354.42								
" " (L.H.)	2.64	134.25	354.42								
Baggage hold door assembly (R.H.)	9.70	124.01	1202.89								
" " " " (L.H.)	9.70	124.01	1202.89								
Ballast : (as required)		22.63									
- Weight : 0 to 62 lb according to equipment											
installed in order to maintain C G											
location as specified in para-											
graph 4.1.1.											

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
2. FLYING CONTROLS											
Copilot's dual control	4.459	0.910	4.057								
- Pedal unit	2.300	0.660	1.518								
- Cyclic pitch control stick	1.358	1.015	1.378								
- Collective pitch control lever	0.801	1.450	1.161								
Dual control blanking plates :	0.354	0.906	0.321								
- Collective pitch lever	0.060	1.480	0.089								
- Pedal unit	0.200	0.690	0.138								
- Cyclic stick	0.094	1.000	0.094								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
2. FLYING CONTROLS											
Copilot's dual control	9.82	35.82	351.75								
- Pedal unit	5.07	25.98	131.71								
- Cyclic pitch control stick	2.99	39.96	119.48								
- Collective pitch control lever	1.76	57.08	100.46								
Dual control blanking plates :	0.78	35.66	27.81								
- Collective pitch lever	0.13	58.26	7.57								
- Pedal unit	0.44	27.16	11.95								
- Cyclic stick	0.20	39.37	7.87								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
3. LANDING GEAR											
Wheel type landing gear(with single disc brakes)	57.330	2.974	170.534								
Wheel type landing gear(with different, brakes)	57.520	2.978	171.261								
Nose wheel centering unit (removable parts)	0.625	0.875	0.546								
Metal skis, including :	32.910	3.220	105.970								
- Front ski assembly	7.110	0.935	6.640								
- Rear ski assemblies (2)	25.800	3.850	99.330								
Wooden skis including :	34.040	2.933	99.860								
- Front ski assembly	9.750	0.850	8.287								
- Rear ski assemblies (2)	24.290	3.770	91.573								
Float type landing gear	160.535	2.765	443.879								
Air operated harpoon :	54.600	2.800	152.900								
- Air operated harpoon assembly											
- Support frame assembly											
Hydraulic harpoon :	25.670	3.720	95.494								
- Hydraulic harpoon assembly	18.860	3.710	69.970								
- Support frame assembly	6.260	3.745	23.443								
- Radio installation protective fairing	0.550	3.785	2.081								

CHART D (Continued)

METRIC

DESCRIPTION	Weight (Kg)	Arm (m)	Moment (m.Kg)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
- Standard four-lobe fuel tank assy											
(without jettison system)	25.68	3.10	79.608								
- Self-sealing four-lobe fuel tank assy											
(without jettison system)	32.05	3.10	99.355								
- Four-lobe fuel tank jettison system	6.30	3.60	22.680								
- Ferry flight tank equipped for four-lobe tank	26.39	2.145	56.61								
- Portable extinguisher	3.90	3.878	15.12								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
3. LANDING GEAR											
Wheel type landing gear(with single disc brakes)	126.39	117.08	14797.74								
Wheel type landing gear(with different. brakes)	126.81	117.24	14867.20								
Nose wheel centering unit (removable parts)	1.37	34.44	47.18								
Metal skis including	72.55	126.77	9197.16								
- Front ski assembly	15.67	36.81	576.81								
- Rear ski assemblies (2)	56.87	151.57	8619.78								
Wooden skis including :	74.95	115.47	8654.47								
- Front ski assembly	21.49	33.46	719.05								
- Rear ski assemblies (2)	53.55	148.42	7947.89								
Float type landing gear	353.91	108.85	38523.10								
Air operated harpoon :	-	-	-								
- Air operated harpoon assembly											
- Support frame assembly											
Hydraulic harpoon :	56.59	146.45	8287.60								
- Hydraulic harpoon assembly	41.57	146.06	6071.71								
- Support frame assembly	13.80	147.44	2034.67								
- Radio installation protective fairing	1.21	149.01	180.30								

SCAC Approved
July 26, 1968

CHART D (Continued)
ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
- Standard four-lobe fuel tank assy											
(without jettison system)	56.61	122.0	6909.6								
- Self-sealing four-lobe tank assy	70.66	122.0	8623.6								
(without jettison system)											
- Four-lobe fuel tank jettison system	13.89	141.7	1968.6								
- Ferry flight tank equipped four-lobe tank	58.18	84.5	4916.2								
- Portable extinguisher	8.60	152.7	1312.9								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
4. POWER PLANT											
Air intake grids (2)	1.476	4.150	6.125								
5. FUEL SYSTEM											
Self-sealing fuel tank assembly (without jettison system)	38.340	3.150	120.771								
Standard fuel tank assy (without jettison system)	30.469	3.150	95.977								
Self-sealing fuel tank assembly (with jettison system)	42.340	3.164	133.971								
Standard fuel tank assy (with jettison system)	34.469	3.164	109.177								
6. EQUIPMENT SERVICES											
SAFT type 4000 battery without support	35.160	3.805	133.784								
SAFT type 2.10.35 A battery without support	35.100	3.805	133.555								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
4. POWER PLANT											
Air intake grids (2)	3.25	163.38	530.98								
5. FUEL SYSTEM											
Self-sealing fuel tank assembly (without jettison system)	84.52	124.01	10481.32								
Standard fuel tank assy (without jettison system)	67.17	124.01	8329.75								
Self-sealing fuel tank assembly (with jettison system)	92.34	124.56	11501.87								
Standard fuel tank assy (with jettison system)	75.99	124.56	9465.31								
6. EQUIPMENT SERVICES											
SAFT type 4000 battery without support	77.51	149.80	11610.99								
SAFT type 2.10.35 A battery without support	77.38	149.80	11591.52								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
7. FURNISHINGS											
- Seat 3160-26-20 000											
. Moleskine seat with belt	7.7	1.58	12.26								
. Moleskine seat with EAF 602 fixed harness	9.3	1.57	14.49								
. Moleskine seat with AERAZUR 113 mobile harness	8.7	1.56	13.57								
- Seat 319A26-00 000											
. Light weight seat with belt	5.4	1.52	8.20								
. Seat with harness and back cushion	8.2	1.60	13.04								
. Seat with mobile harness	6.6	1.52	10.03								
- Seat 319A-26-11 000											
. MOD PLASTIA bucket seat with mobile harness											
(AERAZUR 113) for copilot	10.2	1.53	15.67								
. MOD PLASTIA bucket seat with mobile harness											
(AERAZUR 113) for passenger	11.3	1.52	17.17								
- Seat 319A26-10 000											
. MOD PLASTIA bucket seat with mobile harness											
(EAF 602) for copilot	10.6	1.53	16.14								
. MOD PLASTIA bucket seat with mobile harness											
(EAF 602) for passenger	11.6	1.52	17.66								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
7. FURNISHINGS											
- Seat 3160.26.20.000											
. Moleskine seat with belt	17.0	62.7	1063								
. Moleskine seat with EAF 602 fixed harness	20.4	61.7	1257								
. Moleskine seat with AERAZUR 113 mobile harness	19.1	61.5	1177								
- Seat 319A.26.00.000											
. Light weight seat with belt	11.9	59.8	712								
. Seat with harness and back cushion	18.0	63.0	1132								
. Seat with mobile harness	14.5	59.8	871								
- Seat 319A 26.11.000											
. MOD PLASTIA bucket seat with mobile harness (AERAZUR 113) for copilot	22.6	60.2	1360								
. MOD PLASTIA bucket seat with mobile harness (AERAZUR 113) for passenger	25.0	59.8	1490								
- Seat 319A.26.10.000											
. MOD PLASTIA bucket seat with mobile harness (EAF 602) for copilot	23.3	60.2	1401								
. MOD PLASTIA bucket seat with mobile harness (EAF 602) for passenger	25.7	59.8	1533								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
Fire extinguisher (Make : Type :)		3.878									
Documents (under pilot's seat) (variable)		1.410									
First aid kit	0.100	2.680	0.268								
V.I.P. version - Maximum equipment :											
- Access foot rest (stowed under the rear seat)	2.580	2.090	5.392								
- Commando foot rest	4.380	2.050	8.979								
- Foot rest rear support	0.892	2.575	2.297								
- FWD seat with AERAZUR harness	9.040	1.555	14.057								
- Seat cover (1 unit in box)	0.500	2.240	1.120								
- Seat cover (1 unit in box)	0.500	2.240	1.120								
- Seat cover (1 unit in box)	0.500	2.240	1.120								
- Seat cover (1 unit in box)	0.500	2.240	1.120								
- Two half rear seats (support) (R.H. and L.H.) with 1 stowage box above each :	7.800	2.205	17.200								
- EFA 302 belt (each)	0.420	2.205	0.926								
- Rear seat	6.580	2.195	14.443								
- Rear passenger's back rest	7.450	2.450	18.252								
- Two central arm rests	2.226	2.420	5.387								
- Two side arm rests	1.650	2.450	4.042								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
Fire extinguisher (Make : Type :)		152.67									
Documents (under pilot's seat) (variable)		55.51									
First aid kit	0.22	105.51	23.21								
V.I.P. version - Maximum equipment :											
- Access foot rest (stowed under the rear seat)	5.68	82.28	467.35								
- Commando foot rest	9.65	80.75	778.75								
- Foot rest rear support	1.96	101.37	198.68								
- FWD seat with AERAZUR harness	19.92	61.22	1219.50								
- Seat cover (1 unit in box)	1.10	88.18	96.99								
- Seat cover (1 unit in box)	1.10	88.18	96.99								
- Seat cover (1 unit in box)	1.10	88.18	96.99								
- Seat cover (1 unit in box)	1.10	88.18	96.99								
- Two half rear seats (support) (R.H. and L.H.) with 1 stowage box above each :	17.19	86.81	1492.26								
- EFA 302 belt (each)	0.92	86.81	79.86								
- Rear seat	14.50	86.41	1252.94								
- Rear passenger's back rest	16.42	96.45	1583.70								
- Two central arm rests	4.90	95.27	466.82								
- Two side arm rests	3.63	96.45	350.11								

CHART D (Continued)

METRIC

DESCRIPTION	Weight (Kg)	Arm (m)	Moment (m.Kg)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
- Rear seat cover (in box under rear seat)	1.150	2.240	2.576								
- Sun curtains	0.737	1.645	1.212								
- Forward floor covering	2.720	1.120	3.046								
- Rear floor covering	3.600	1.935	6.966								
- First aid kit (in box under rear seat)											
LH rear half-seat bench (as used)	3.770	2.155	8.124								
LH rear half-seat bench (stowed)	3.770	2.350	8.859								
RH rear half-seat bench (as used)	3.770	2.155	8.124								
RH rear half-seat bench (stowed)	3.770	2.350	8.859								
1 Harness, AERAZUR 613	1.177	2.170	2.554								
1 Harness, AERAZUR 613	1.177	2.170	2.554								
1 Harness, AERAZUR 613	1.177	2.170	2.554								
1 Belt, EFA 302	0.378	2.160	0.816								
1 rear seat bench backrest	1.210	2.400	2.904								

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (Kg)	Arm (m)	Moment (m.Kg)	1	2	3	4
				Aircraft lb / Chart A entry	Aircraft lb / Chart A entry	Aircraft lb / Chart A entry	Aircraft lb / Chart A entry
- Rear seat cover (in box under rear seat)	2.53	88.18	223.09				
- Sun curtains	1.62	64.76	104.91				
- Forward floor covering	6.00	44.09	264.54				
- Rear floor covering	7.94	76.18	604.86				
- First aid kit (in box under rear seat)		88.18					
LH rear half-seat bench (as used)	8.31	84.84	705.13				
LH rear half-seat bench (stowed)	8.31	92.52	768.92				
RH rear half-seat bench (as used)	8.31	84.84	705.13				
RH rear half-seat bench (stowed)	8.31	92.52	768.92				
1 Harness, AERAZUR 613	2.59	85.43	221.67				
1 Harness, AERAZUR 613	2.59	85.43	221.67				
1 Harness, AERAZUR 613	2.59	85.43	221.67				
1 Harness, AERAZUR 613	2.59	85.43	221.67				
1 Belt, EFA 302	0.83	85.04	70.82				
1 rear seat bench backrest	2.67	94.488	252.05				

CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
8. AIRCRAFT CONTROL-NAVIGATION											
NR AS 5, radio altimeter	8.450	2.568	21.706								
- ID 50 A indicator	1.280	0.770	0.985								
- ER 54 A receiver-transmitter	7.170	2.890	20.721								
AHV-3, radio altimeter	10.150	2.390	24.256								
- AHV-3/095 indicator	1.000	0.750	0.750								
- AHV-3/021 A UHF unit	3.900	2,083	8.124								
- 022 A servo module	5.250	2.930	15.382								
NR AN 11 A, radio-compass	5.886	0.823	4.845								
- ID 47 A indicator	1.276	0.745	0.950								
- RR 51 A receiver	4.160	0.845	3.515								
- SK 42 A case	0.450	0.845	0.380								
NR AN 11 G , radio-compass	6.090	0.823	5.012								
- RR 51 A receiver	4.160	0.845	3.515								
- AD 29 A indicator	1.480	0.755	1.117								
- SK 42 A case	0.450	0.845	0.380								
MARCONI AD 370, radio compass	6.305	2.520	15.893								
- ID 57 A indicator	0.785	0.780	0.612								
- AA 3702.2 control panel	0.920	1.385	1.274								
- AA 3701.1 receiver	4.600	3.045	14.007								

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
8. AIRCRAFT CONTROL-NAVIGATION											
NR AS 5, radio altimeter	18.63	101.10	1883.49								
- ID 50 A indicator	2.82	30.31	85.47								
- ER 54 A receiver-transmitter	15.80	113.77	1797.56								
AHV-3, radio altimeter	22.37	94.09	2104.79								
- AHV-3/095 indicator	2.20	29.52	64.94								
- AHV-3/021 A UHF unit	8.60	82.00	705.20								
- 022 A servo module	11.57	115.35	1334.59								
NR AN 11 A, radio-compass	12.97	32.40	420.22								
- ID 47 A indicator	2.81	29.33	82.41								
- RR 51 A receiver	9.17	33.26	304.99								
- SK 42 A case	0.99	33.26	32.92								
NR AN 11 G, radio-compass	13.42	32.40	434.80								
- RR 51 A receiver	9,17	33.26	304.99								
- AD 29 A indicator	3.26	29.72	96.88								
- SK 42 A case	0.99	33.26	32.92								
MARCONI AD 370, radio compass	13.89	99.21	1378.02								
- ID 57 A indicator	1.73	30.70	53.11								
- AA 3702.2 control panel	2.02	54.52	110.13								
- AA 3701.1 receiver	10.14	119.88	1215.58								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m,kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
ARC type 21 B, radio compass	6.205	2.953	18.328								
- IN 21 C indicator	0.870	0.725	0.631								
- R 30 B receiver	3.000	3.695	11.085								
- C 59 A control panel	0.750	1.050	0.788								
- DV 14 A power supply	1.585	3.675	5.824								
ARC type 21 B radio compass	6.205	2.349	14.576								
- R 30 B receiver	3.000	2.875	8.625								
- C 59 A control panel	0.750	1.050	0.787								
- DV 14 A power supply	1.585	2.860	4.533								
- IN 21 C indicator	0.870	0.725	0.631								
MARCONI AD 370 radio compass	5.651	2.563	14.482								
- RC receiver, type AA 3701-2	4.415	3.035	13.400								
- Control panel, type AA 3731-2	1.236	0.875	1.082								

Printed in France

CHART D (Continued)

METRIC

DESCRIPTION	Weight (Kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
VHF AN/ARA 50 radio compass	3.048	1.899	5.788								
- ID 250 type 1280A indicator	0.698	0.785	0.548								
- Coaxial relay											
- Monitoring amplifier	2.350	2.230	5.240								

Printed in France

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
ARC type 21 B, radio compass	13.68	116.14	1590.42								
- IN 21 C indicator	1.92	28.54	54.79								
- RC 30 B receiver	6.61	145.47	961.55								
- C 59 A control panel	1.65	41.33	68.19								
- DV 14 A power supply	3.50	144.68	506.38								
ARC type 21 B radio compass	13.68	92.47	1265.16								
- R 30 B receiver	6.61	113.18	748.12								
- C 59 A control panel	1.65	41.33	68.19								
- DV 14 A power supply	3.50	112.59	394.06								
- IN 21 C indicator	1.92	28.54	54.79								
MARCONI AD 370 radio compass	12.45	100.89	1255.87								
- RC receiver, type AA 3701-2	9.73	119.48	1162.54								
- Control panel, type AA 3731-2	2.71	34.44	93.33								

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1	2	3	4
				In aircraft / Chart A entry	In aircraft / Chart A entry	In aircraft / Chart A entry	In aircraft / Chart A entry
VHF AN/ARA 50 radio compass	6.70	74.75	502.07				
- ID 250 type 1280A indicator	1.53	30.90	47.27				
- Coaxial relay							
- Monitoring amplifier	5.18	87.80	454.80				

Printed in France

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March 17, 1970

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 18 HF homing radio set	11.744	3.227	37.899								
- BC 73 A control panel	1.037	0.985	1.021								
- ER 46 A transmitter-receiver	7.000	3.785	26.495								
- BA 108 A power supply	2.642	3.755	9.920								
- MA 3A automatic keyer unit	1.065	0.435	0.463								
TRAP 21 UHF radio set + NRAN12 UHF homing	18.687	2.542	47.508								
- ID 41 B indicator	0.622	0.760	0.472								
- BC 138 A or BC 281 A control panel	1.725	0.880	1.518								
- OR 31 A, AF unit	0.555	0.460	0.255								
- ER 76A receiver transmitter	11.030	2.860	31.545								
- BA 220 A power supply	3.380	2.820	9.531								
- Protective cover	1.239	3.090	3.828								
- 2 A 21 SA radio amplifier relay	0.136	2.640	0.359								
Collins AN/ARC 54, HF homing	11.476	2.586	29.685								
- RT, 348 receiver-transmitter	9.740	2.885	28.100								
- C 3835 control panel	0.936	1.040	0.973								
- ID 48 indicator	0.800	0.765	0.612								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 18 HF homing radio set	25.89	127.04	3289.06								
- BC 73 A control panel	2.28	38.77	88.39								
- ER 46 A transmitter-receiver	15.43	149.01	2299.22								
- BA 108 A power supply	5.82	147.83	860.37								
- MA 3 A automatic keyer unit	2.34	17.12	40.06								
TRAP 21 UHF radio set + NRAN 12 UHF homing	41.19	100.07	4121.88								
- ID 41 B indicator	1.37	29.92	40.99								
- BC 138 A or BC 281 A control panel	3.80	34.64	131.63								
- OR 31 A, AF unit	1.22	18.11	22.09								
- ER 76A receiver transmitter	24.32	112.59	2738.19								
- BA 220 A power supply	7.45	111.02	827.09								
- Protective cover	2.73	121.65	332.10								
- 2 A 21 SA radio amplifier relay	0.30	103.97	31.19								
Collins AN/ARC 54, HF Homing	25.29	101.96	2575.88								
- RT, 348 receiver-transmitter	21.47	113.58	2438.56								
- C 3835 control panel	2.06	40.94	84.33								
- ID 48 indicator	1.76	30.11	52.99								

CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
VHF (TRAP 32) + VOR (AD 56 A)	16.925	2.432	41.170								
- ER 36 A receiver transmitter	7.680	2.860	21.965								
- BA 177 B power supply	0.861	3.210	2.763								
- SK 21C filtering base	0.937	3.210	3.008								
- BA 258 A control panel	2.070	0.875	1.811								
- VOR AD 56A indicator	3.640	2.840	10.337								
- VOR ID 71A indicator	1.737	0.740	1.286								
VION 143, magnetic compass	0.204	0.793	0.161								
J.2 Gyro-magnetic compass											
- Indicator (V8 type)		0.720									
- Gyro control (C 4 type)		3.720									
- Amplifier (A2 type)		1.720									
- Magnetic compensator		6.610									
- Flux valve (C2 type)		6.610									

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
VHF (TRAP 32) + VOR (AD 56 A)	37.31	95.74	3572.06								
- ER 36 A receiver transmitter	16.94	112.59	1907.27								
- BA 177 B power supply	1.90	126.37	240.10								
- SK 21 C filtering base	2.06	126.37	260.32								
- BA 258 A control panel	4.56	34.44	157.04								
- VOR AO 56 A indicator	8.02	111.81	896.71								
- VOR ID 71 A indicator	3.83	29.13	111.56								
J.2 Gyro-magnetic compass											
- Indicator (V8 type)		28.34									
- Gyro control (C 4 type)		146.45									
- Amplifier (A2 type)		67.71									
- Magnetic compensator		260.23									
- Flux valve (02 type)		260.23									

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (Kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
IMC installation	2.049	0.773	1.584								
- Badin 851-1 artificial horizon	1.170	0.775	0.906								
- 830-1 directional gyro	0.825	0.770	0.635								
- Bank indicator	0.054	0.795	0.043								
Anti-collision lights	1.144	2.910	4.202								
Landing light	2.130	0.480	1.022								
BREGUET type 11, clock	0.185	0.830	0.153								
SOCRAT type 2100, marker receiver											
- Type 2100 receiver	1.500	2.905	4.357								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
IMC installation	4.50	30.43	136.93								
- Badin 851-1 artificial horizon	2.58	30.51	78.71								
- 830-1 directional gyro	1.81	30.31	54.86								
- Bank indicator	0.12	31.29	3.75								
- Anti-collision lights	3.18	114.56	364.30								
- Landing light	4.69	18.89	88.59								
BREGUET type 11, clock	0.40	32.67	13.06								
SOCRAT type 2100, marker receiver											
- Type 2100 receiver	3.30	114.36	377.38								

SGAC Approved
May 6, 1969

CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1	2	3	4
				In aircraft / Chart A entry	In aircraft / Chart A entry	In aircraft / Chart A entry	In aircraft / Chart A entry
9. I.C.S. AND RADIO INSTALLATION							
TF AP 6, intercommunication system	1.868	1.551	2.997				
- Pilot's KR 42 A control panel	0.467	1.050	0.590				
- Copilot's KR 42 A control panel	0.467	1.115	0.521				
- Passenger's KR 42 A control panel	0.467	1.900	0.887				
- Passenger's KR 42 A control panel	0.467	2.140	0.999				
TF AP 11, intercommunication system	3.501	1.248	4.371				
- Pilot's KR 86 A control panel	1.167	0.860	1.004				
- Copilot's KR 86 A control panel	1.167	0.975	1.138				
- Passenger's KR 86 A control panel	1.167	1.910	2.229				
ST2 HL (TFAP 11), intercommunication system	2.598	1.272	3.243				
- Pilot's CS 842 HL control panel	0.866	0.895	0.775				
- Copilot's CS 842 HL control panel	0.866	0.970	0.840				
- Passenger's CS 842 HL control panel	0.866	1.880	1.628				

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
9. I.C.S. AND RADIO INSTALLATION											
TF AP 6, intercommunication system	4.12	61.02	251.38								
- Pilot's KR 42 A control panel	1.03	41.33	42.56								
- Copilot's KR 42 A control panel	1.03	43.70	45.01								
- Passenger's KR 42 A control panel	1.03	74.80	77.04								
- Passenger's KR 42 A control panel	1.03	84.25	86.77								
TF AP 11, intercommunication system	7.72	49.20	378.85								
- Pilot's KR 86 A control panel	2.57	33.85	86.99								
- Copilot's KR 86 A control panel	2.57	38.38	98.63								
- Passenger's KR 86 A control panel	2.57	75.19	193.23								
5T2 HL (TFAP 11), intercommunication system	5.73	53.93	281.55								
- Pilot's CS 842 HL control panel	1.91	35.23	67.28								
- Copilot's CS 842 HL control panel	1.91	38.18	72.92								
- Passenger's CS 842 HL control panel	1.91	74.01	141.35								

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March 17, 1970

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TF AP 11 B, intercommunication system											
- Pilot's KR 78 A control panel		1.015									
- Copilot's KR 78 A control panel		1.015									
- Passenger's KR 78 A control panel		1.880									
TF AP 11 G, intercommunication system	2.640	1.303	3.440								
- Pilot's KR 88 B control panel	0.880	1.015	0.893								
- Copilot's KR 88 B control panel	0.880	1.015	0.893								
- Passenger's KR 88 B control panel	0.880	1.880	1.654								
TF AP 11, intercommunication system	4.500	1.420	6.391								
- Pilot's CP 841C control panel	1.125	0.885	0.996								
- Copilot's CP 841C control panel	1.125	0.975	1.097								
- Passenger's CP 841C control panel	1.125	1.880	2.115								
- Passenger's CP 841C control panel	1.125	1.940	2.183								

Printed in France

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TF AP 11 B, intercommunication system											
- Pilot's KR 78 A control panel		39.96									
- Copilot's KR 78 A control panel		39.96									
- Passenger's KR 78 A control panel		74.01									
TF AP 11 G, intercommunication system	5.82	51.19	298.61								
- Pilot's KR 88 B control panel	1.94	39.96	77.52								
- Copilot's KR 88 B control panel	1.94	39.96	77.52								
- Passenger's KR 88 B control panel	1.94	74.01	143.57								
TF AP 11, intercommunication system	9.92	55.90	554.51								
- Pilot's CP 841C control panel	2.48	34.84	86.40								
- Copilot's CP 841C control panel	2.48	38.38	95.18								
- Passenger's CP 841C control panel	2.48	74.01	183.54								
- Passenger's CP 841C control panel	2.48	76.37	189.39								

Printed in France

CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TF AP 11, intercommunication system	3.785	1.830	6.928								
- Pilot's KR 88 B control panel	0.880	0.895	0.787								
- Copilot's KR 88 B control panel	0.880	0.975	0.858								
- Passenger's KR 88 B control panel	0.880	1.885	1.659								
- Protective cover	1.145	3.165	3.624								
TR AP 21, UHF radio set	17.280	2.674	46.218								
- BC 138 A control panel	1.725	0.880	1.518								
- ER 76 A receiver-transmitter	11.030	2.860	31.545								
- BA 220 A power supply	3.380	2.820	9.531								
- Protective cover	1.145	3.165	3.624								
TR AP 22, UHF radio set	27.300	2.765	75.490								
- BC 138 A control panel	1.725	0.885	1.526								
- ER 68 A receiver transmitter + DY 21 A inverter	24.620	2.885	71.028								
- Protective cover	0.995	3.075	2.936								
Collins 205, UHF radio set											
- 613 P 2 control panel		0.880									
- 618 PG receiver-transmitter		2.735									

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb,in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TF AP 11, intercommunication system	8.34	72.04	600.81								
- Pilot's KR 88 B control panel	1.94	35.23	68.34								
- Copilot's KR 88 B control panel	1.94	38.38	74.45								
- Passenger's KR 88 B control panel	1.94	74.21	143.96								
- Protective cover	2.52	124.60	313.99								
TR AP 21, UHF radio set	38.09	105.27	1167.47								
- BC 138 A control panel	3.80	34.64	131.63								
- ER 76 A receiver-transmitter	24.31	112.59	2737.06								
- BA 220 A power supply	7.45	111.02	827.09								
- Protective cover	2.52	124.60	313.99								
TR AP 22, UHF radio set	60.18	108.85	4009.73								
- BC 138 A control panel	3.80	34.84	132.39								
- ER 68 A receiver transmitter + DY 21 A inverter	54.27	113.58	6163.98								
- Protective cover	2.11	121.06	255.43								
Collins 205, UHF radio set											
- 613 P 2 control panel		34.64									
- 618 PG receiver-transmitter		107.67									

CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
AN/ARC 51 X, UHF radio set											
- 3/ARC 51 X control panel		1.965									
- 1/ARC 51 X receiver-transmitter		1.115									
Collins 205, AN/ARC 51 BX, UHF radio set											
- RT 742/ARC 51 BX receiver transmitter		2.735									
- C 6287/ARC 51 BX control panel		0.865									
AN/ARC 51 BX UHF unit	15.710	2.668	41.914								
- MT 2653/ARC 51 shockmount - HD 615/ARC 51 fan - ID 1003/ARC 51 wattmeter	14.020	2.860	40.097								
- C.6287/ARC 51 BX control panel	1.690	1.075	1.817								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 8A, VHF radio set	9.892	3.818	37.845								
- BC 12 A control panel	0.490	0.890	0.436								
- ER 3A receiver transmitter	7.300	3.980	29.054								
- DY 16 A power supply	1.165	3.980	4.636								
- SK 21 C filtering base	0.937	3.980	3.729								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
AN ARC 51 X, UHF radio set											
- 3/ARC 51 X control panel		77.36									
- 1/ARC 51 X receiver-transmitter		43.89									
Collins 205, AN/ARC 51 BX, UHF radio set											
- RT 742/ARC 51 BX receiver transmitter		107.67									
- C 6287/ARC 51 BX control panel		34.05									
AN/ARC 51 BX UHF unit	34.62	10.51	363.31								
- MT 2653/ARC 51 shockmount											
- HD 615/ARC 51 fan	30.90	11.25	347.62								
- ID 1003/ARC 51 wattmeter											
- C.6287/ARC 51 BX control panel	3.72	4.22	15.69								

SGAC Approved
March 17, 1970

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1	2	3	4
				In aircraft / Chart A entry	In aircraft / Chart A entry	In aircraft / Chart A entry	In aircraft / Chart A entry
TR AP 8A, VHF radio set	21.82	150.03	3283.06				
- BC 12 A control panel	1.08	35.03	37.83				
- ER 3A receiver transmitter	16.09	156.70	2521.30				
- DY 16 A power supply	2.56	156.70	401.15				
- SK 21 C filtering base	2.06	156.69	322.78				

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 8 D, VHF radio set	11.498	3.825	43.990								
- BC 12 A control panel	0.490	0.890	0.436								
- ER 3 A receiver-transmitter	7.300	3.980	29.054								
- 177 B power supply	0.861	3.980	3.427								
- SK 21 C filtering base	0.937	3.980	3.729								
- Protective cover	1.910	3.845	7.344								
TR AP 28, VHF radio set	16.350	2.726	44.678								
- Control panel 22571	1.025	0.885	0.907								
- ER 78 A receiver transmitter	10.990	2.850	31.321								
- BA 220 A power supply	3.380	2.815	9.514								
- Protective cover	0.955	3.075	2.936								
TR AP 30 , VHF radio set	10.513	2.873	30.211								
- BC 12 A control panel	0.490	0.885	0.433								
- ER 3 B receiver transmitter	7.080	2.935	20.779								
- 177 A power supply	0.861	2.990	2.574								
- SK 21 C filtering base	0.937	2.990	2.801								
- Protective cover	1.145	3.165	3.624								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 8 D, VHF radio set	25.34	150.79	3821.01								
- BC 12 A control panel	1.08	35.03	37.83								
- ER 3 A receiver-transmitter	16.09	156.70	2511.64								
- 177 B power supply	1.90	156.70	297.73								
- SK 21 C filtering base	2.06	156.70	322.80								
- Protective cover	4.21	151.37	637.26								
TR AP 28, VHF radio set	36.04	107.32	3867.81								
- Control panel 22571	2.26	34.84	78.73								
- ER 78 A receiver-transmitter	24.22	112.20	2717.48								
- BA 220 A power supply	7.45	110.82	825.60								
- Protective cover	2.11	121.06	255.43								
TR AP 30 , VHF radio set	23.16	113.11	2619.63								
- BC 12 A control panel	1.08	34.84	37.62								
- ER 3 B receiver transmitter	15.60	115.55	1802.58								
- 177 A power supply unit	1.90	117.71	223.64								
- SK 21 C filtering base	2.06	117.71	242.48								
- Protective cover	2.52	124.60	313.99								

Printed in France

CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 30 D, VHF radio set	9.368	3.818	35.770								
- BC 12 A control panel	0.490	0.890	0.436								
- 3 B receiver transmitter	7.080	3.980	28.178								
- 177 B power supply	0,861	3.980	3.427								
- SK 21 C filtering base	0,937	3.980	3.729								
Collins 618 M1 A, VHF radio set	9,291	2.755	25,595								
- 313 N 3 control panel	0,851	0.870	0,740								
- ER 618 M1 A receiver transmitter	8,440	2,945	24.855								
Collins 618 M-2D, VHF radio set	8.501	2.747	23,351								
- 313 N 5 control panel	0,851	0,875	0,745								
- 618 M-2D receiver-transmitter	7.650	2,955	22,606								
TR AP 32, VHF radio set	11.548	3.423	39.535								
- BC 258 A control panel	2.070	0.890	1.842								
- ER 96 A VHF receiver-transmitter	7.680	3.975	30.528								
- BA 177 B power supply	0.861	3.985	3.431								
- SK 21 C filtering base	0.937	3.985	3.734								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 30 D, VHF radio set	20.64	150.03	3102.89								
- BC 12 A control panel	1.08	35.03	37.83								
- 3 B receiver-transmitter	15.60	156.70	2444.53								
- 177 B power supply	1.90	156.70	297.73								
- SK 21 C filtering base	2.06	156.70	322.80								
Collins 618 M1 A, VHF radio set	20.48	108.46	2221.26								
- 313 N3 control panel	1.87	34.25	64.04								
- ER 618 M1 A receiver transmitter	18.60	115.94	2156.48								
Collins 618 M-2D, VHF radio set	18.75	108.26	2054.72								
- 313 N5 control panel	1.87	34.44	64.40								
- 618 M-2D receiver transmitter	16.86	118.05	1990.32								
TR AP 32, VHF radio set	25.46	135.03	3431.91								
- BC 258 A control panel	4.56	35.03	159.73								
- ER 96 A VHF receiver-transmitter	16.94	156.49	2650.94								
- BA 177 B power supply	1.90	156.88	298.07								
- SK 21 C filtering base	2.06	156.88	323.17								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
SOCRAT, TR AP 32 VHF radio set	11.548	2.597	29.997								
- BC 258 A control panel	2.070	0.885	1.832								
- BA 177 B transistor power supply	0.861	3.000	2.583								
- SK 21C filtering base	0.937	3.000	2.811								
- ER 96 A receiver-transmitter	7.680	2.965	22.771								
KX 160F King VHF radio set with ICS	4.504	0.617	2.779								
- KX 160F receiver transmitter	2.760	0.675	1.863								
- KS 505 power supply	1.744	0.525	0.916								
Narco MARK 12 A, VHF unit	4.530	0.628	2.845								
- MARK 12A T/R unit	2.900	0.815	2.364								
- Power supply T24 - MP 12A1 with mounting	1.630	0.295	0.481								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
SOCRAT, TR AP 32 VHF radio set	25.46	102.36	2603.97								
- BC 258 A control panel	4.56	34.84	158.87								
- BA 177B transistor power supply	1.90	118.11	224.40								
- SK 21C filtering base	2.06	118.11	243.30								
- ER 96 A receiver-transmitter	16.94	116.73	1977.40								
KX 160F King VHF radio set with ICS	9.92	24.28	240.87								
- KX 160F receiver transmitter	6.08	26.57	161.54								
- KS 505 power supply	3.84	20.66	79.33								
Narco MARK 12 A, VHF unit	9.98	24.72	246.91								
- MARK 12 A T/R unit	6.39	32.08	205.09								
- Power supply T24 - MP 12A1 with mounting	3.59	11.65	41.82								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
Collins 618 T3, HF radio set :	43.461	3.266	141.981								
- 714 E 3 control panel	0.761	1.040	0.791								
- 488 A2 inverter	3.610	2.730	9.855								
- 618 T 3 receiver-transmitter	23.700	3.010	71.337								
- 180 R 6 antenna coupler	10.780	3.960	42.688								
- 309 A 2 D coupler control	4.610	3.755	17.310								
ASB 100, SSB HF radio set	7.560	3.752	28.731								
- RE 1000 transceiver (N° 99912)	3.400	3.860	13.124								
- PA 1010 power supply (N° 99914)	3.740	3.950	14.773								
- SCV 10 control panel (N° 99896)	0.420	1.130	0.474								
Collins 618 T3 SSB, HF radio set	40.456	3.166	128.083								
- 618 T3 T/R unit	23.700	3.035	72.403								
- T/R mounting 39052 with inverter	7.190	2.840	20.420								
- 714 E3 control panel	0.761	1.035	0.788								
- 490 T1 A antenna coupler	8.805	3.915	34.472								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
Collins 618 T 3, HF radio set :	95.78	128.57	12319.39								
- 714 E 3 control panel	1.67	40.94	68.36								
- 488 A2 inverter	7.95	107.48	854.46								
- 618 T 3 receiver-transmitter	52.24	118.50	6190.44								
- 180 R 6 antenna coupler	23.76	155.90	3704.18								
- 309 A 2 D coupler control	10.16	147.83	1501.95								
ASB 100, SSB HF radio set	16.67	147.63	2462.49								
- RE 1000 transceiver (N° 99912)	7.49	151.96	1138.18								
- PA 1010 power supply (N° 99914)	8.25	155.51	1282.95								
- SCV 10 control panel (N° 99896)	0.93	44.48	41.36								
Collins 618 T3 SSB, HF radio set	89.16	124.40	11091.50								
- 618 T 3 T/R unit	52.24	119.29	6231.70								
- T/R mounting 39052 with inverter	15.85	111.81	1772.18								
- 714 E 3 control panel	1.67	40.55	67.71								
- 490 T1 A antenna coupler	19.40	153.95	2986.63								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 18, HF radio set	10.679	3.505	37.436								
- BC 73 A control panel	1.037	0.985	1.021								
- ER 46A receiver transmitter	7.000	3.785	26.495								
- BA 108 A power supply	2.642	3.755	9.920								
10. OPERATIONAL INSTALLATIONS											
Bad weather mooring equipment	2.200	3.605	7.931								
APX 44 IFF installation											
- C.2714 control box		1.125									
- AM 120 A amplifier + S 1040 base	0.209	2.760	0.576								
- RT 494 receiver-transmitter		3.675									
SARAH R 825 installation	7.129	0.817	5.829								
- BR-1082 + BA BP 105 receiver-transmitter	6.920	0.750	5.220								
- AM 120 A amplifier + S 988 A base	0.209	2.915	0.609								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
TR AP 18, HF radio set	23.54	137.99	3248.28								
- BC 73 A control panel	2.28	38.77	88.39								
- ER 46 A receiver transmitter	15.43	149.01	2299.22								
- BA 108 A power supply	5.82	147.83	860.37								
10. OPERATIONAL INSTALLATIONS											
Bad weather mooring equipment	4.85	141.92	688.31								
APX 44 IFF installation											
- C. 2714 control box		44.29									
- AM 120 A amplifier + 1040 base	0.46	108.66	49.98								
- RT 494 receiver-transmitter		144.68									
SARAH R 825 installation	15.70	32.16	504.91								
- BR-1082 + BA BP 105 receiver-transmitter	15.25	29.52	450.18								
- AM 120 A amplifier + S 988 A base	0.46	114.76	52.78								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (Kg)	Arm (m)	Moment (m.Kg)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
11. EQUIPMENT FOR SPECIAL MISSIONS											
Freight mooring equipment (in LH baggage hold)	0.979	2.625	2.570								
Freight mooring equipment (in RH baggage hold)	0.979	2.625	2.570								
HOIST ASSEMBLY (175 kg)											
- Lightened beam assembly	9.310	2.740	25.500								
- AIR EQUIPEMENT 76.300.100 hoist	13.120	2.030	26.634								
- Protective block	0.360	2.400	0.864								
- Step with attachment fittings	3.130	2.140	6.698								
- Winchman's control grip assembly (rest position)	0.690	1.630	1.125								
- Two eye-bolts	0.030	1.050	0.032								
- Winchman's safety belt	0.740										
Ambulance installation :											
- Stretcher supports	4.700	2.100	9.870								
- Lower stretcher	10.000	2.050	20.500								
- Upper stretcher	10.000	2.190	21.900								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb-in)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
11. EQUIPMENT FOR SPECIAL MISSIONS											
Freight mooring equipment (in LH baggage hold)	2.15	103.34	222.18								
Freight mooring equipment (in RH baggage hold)	2.15	103.34	222.18								
HOIST ASSEMBLY (175 kg)											
- Lightened beam assembly	20.51	107.8	2213.2								
- AIR EQUIPEMENT 76.300.100 hoist	28.91	355.5	2311.6								
- Protective block	0.79	94.5	75.0								
- Step with attachment fittings	6.90	84.3	581.4								
- Winchman's control grip assembly (rest position)	1.52	64.1	97.6								
- Two eye-bolts	0.07	41.3	27.3								
- Winchman's safety belt	1.63										
Ambulance installation :											
- Stretcher supports	10.36	82.67	856.46								
- Lower stretcher	22.04	80.70	1778.62								
- Upper stretcher	22.04	86.22	1900.28								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (Kg)	Arm (m)	Moment (m.Kg)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
HOIST ASSEMBLY (225 kg)	28.360	2.25	63.913								
- Lightened beam assembly	6.780	2.940	19.933								
- AIR EQUIPEMENT 76.300.200 hoist	17.370	2.030	35.261								
- Protective block	0.360	2.400	0.864								
- Step with attachment fittings	3.130	2.140	6.698								
- Winchman's control grip assembly (rest position)	0.690	1.630	1.125								
- Two eye-bolts	0.030	1.050	0.032								
- Winchman's safety belt	0.740										
- Passenger seat + harness (hoist operator's position)		1.25									
- L.H. rear lower cowling (removed for hoist operation)	1.25	2.14	2.675								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb-in)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
HOIST ASSEMBLY (225 kg)	62.52	88.6	5547.3								
- Lightened beam assembly	14.95	115.7	1730.0								
- AIR EQUIPEMENT 76.300.200 hoist	38.29	79.9	3060.5								
- Protective block	0.79	94.5	75.0								
- Step with attachment fittings	6.90	84.3	581.4								
- Winchman's control grip assembly (rest position)	1.52	64.2	97.6								
- Two eye-bolts	0.07	41.3	2.8								
- Winchman's safety belt	1.63										
- Passenger's seat + harness (Hoist operator's position)		49.2									
- L.H rear lower cowling (removed for hoist operation)	2.76	84.3	232.2								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
Cargo swing	11.800	3.000	35.400								
Cargo sling (in operating position)	7.400	2.990	22.126								
Cargo sling (stowed)	7.400	3.000	22.200								
Commando installation with cargo carrier	18.152	2.818	51.151								
- L.H. front seat	7.358	1.135	8.351								
- EFA 602 M1 harness	1.892	1.185	2.242								
- AERAZUR 613 harness (alternative)	1.322	1.185	1.566								
- Central front seat	7.358	1.225	9.013								
- EFA 602 M1 harness	1.892	1.275	2.412								
- AERAZUR 613 harness (alternative)	1.322	1.275	1.685								
- Commando foot rest (R.H. side)	2.270	2.050	4.653								
- Commando foot rest (L.H. side)	2.270	2.050	4.653								
- Foot rest rear support (R.H. side)	0.892	2.575	2.297								
- foot rest rear support (L.H. side)	0.892	2.575	2.297								
- Commando container (R.H. side)	5.530	3.271	18.090								
- Commando container (L.H. side)	5.530	3.271	18.090								
- Collective lever protective plate	0.768	1.395	1.071								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
Cargo swing	26.01	118.11	3072.04								
Cargo sling (in operating position)	16.31	117.71	1919.85								
Cargo sling (stowed)	16.31	118.11	1926.37								
Commando installation with cargo carrier	40.01	110.94	4438.70								
- L.H. front seat	16.22	44.68	724.70								
- EFA 602 M1 harness	4.17	46.65	194.53								
- AERAZUR 613 harness (alternative)	2.91	46.65	135.75								
- Central front seat	16.22	44.29	718.38								
- EFA 602 M1 harness	4.17	50.19	209.29								
- AERAZUR 613 harness (alternative)	2.91	50.19	146.05								
- Commando foot rest (R.H. side)	5.00	80.70	403.50								
- Commando foot rest (L.H. side)	5.00	80.70	403.50								
- Foot rest rear support (R.H. side)	1.96	101.37	198.68								
- Foot rest rear support (L.H. side)	1.96	101.37	198.68								
- Commando container (R.H. side)	12.19	128.77	1569.70								
- Commando container (L.H. side)	12.19	128.77	1569.70								
- Collective lever protective plate	1.69	54.92	92.81								

CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aicraft	Chart A entry	In aircraft	Chart A entry
- Barrier type sand filter installation	31.200	4.210	131.352								
- Sand filter (R.H. side)	15.600	4.210	65.676								
- Sand filter (L.H. side)	15.600	4.210	65.676								
Ferry flight fuel tank (cubic tank)	26.900	2.134	57.404								
Blades quick folding equipment (items on board)	29.000	2.100	60.900								
Emergency floatation gear	76.836	3.437	264.068								
- L.H. float assembly	23.937	2.975	71.226								
- R.H. float assembly	23.937	2.975	71.226								
- Cylinders with support assembly	25.812	4.280	110.480								
- 4 connecting lines	2.420	3.565	8.621								
- Hardware and bonding braids	0.730	3.437	2.509								

CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
- Barrier type sand filter installation	68.78	165.74	1139.59								
- Sand filter (R.H. side)	34.39	165.74	5699.79								
- Sand filter (L.H. side)	34.39	165.74	5699.79								
Ferry flight fuel (cubic tank)	59.30	84.01	4981.79								
Blades quick folding equipment (items on board)	63.93	82.67	5285.09								
Emergency floatation gear	169.39	135.31	22920.16								
- L.H. float assembly	52.76	117.12	6179.25								
- R.H. float assembly	52.76	117.12	6179.25								
- Cylinders with support assemblies	56.90	168.50	9587.65								
- 4 connecting lines	5.33	140.35	748.06								
- Hardware and bonding braids	1.61	135.31	217.84								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
Emergency floatation gear	83.93	3.53	296.030								
- L.H. case support assembly complete with											
lines, fabric, lacing and hardware	24.92	3.20	79.744								
- R.H. case support assembly complete	24.37	3.20	77.984								
- 2 drag struts + hardware	1.98	3.11	6.158								
- 2 rear compression struts + hardware	1.61	3.63	5.844								
- 2 attachment rods + hardware	0.88	2.64	2.323								
- 2 front rods + hardware	0.91	2.64	2.402								
- 2 front compression struts + hardware	2.32	2.71	6.287								
- 2 rods assemblies	0.23	4.58	1.053								
- Support assembly complete with 4 full											
cylinders	25.87	4.28	110.724								
- Electrical assembly (removable parts)	0.84	4.18	3.511								
Aerazur bellows	2.20	Variable									
Aerazur tube	1.03										
Aerazur pressure gauge	0.20										

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb-in)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
Emergency floatation gear	185.03	139.0	25693.9								
- L.H float case support assembly, with line, fabric lace and hardware	54.94	126.0	6921.4								
- R.H float case support assembly	53.73	126.0	6768.6								
- 2 drag links + hardware	4.36	122.4	534.5								
- 2 rear compression struts + hardware	3.55	142.9	507.2								
- 2 attachment links + hardware	1.94	103.9	201.6								
- 2 forward links + hardware	2.00	103.9	208.5								
- 2 forward compression struts + hardware	5.11	106.7	545.7								
- 2 link assemblies	0.51	180.3	91.4								
- Support assembly + 4 full cylinders	57.03	168.5	9610.3								
- Electrical system (movable parts)	1.85	164.6	304.7								
"Aerazur" bellows	4.85	Variable									
"Aerazur" lines	2.27										
"Aerazur" pressure gauge	0.44										

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
Air intake assemblies complete (sand filter)	31.20	4.21	131.352								
- Components to be removed :											
- 2 air intake grids	1.48	4.15	6.142								
- 2 normal air intakes	1.72	4.15	7.138								
Battery support	1.07	3.80	4.071								
Reinforced tank (LTV)	30.05	3.05	93.000								
STARBOARD additional fuel tank, including :	16.62	3.14	52.187								
Removable parts : - attaching (elastic cords),											
fuel lines, vent pipes.											
PORT additional fuel tank, including :	17.53	3.14	55.044								
Removable parts : - attaching (elastic cords),											
fuel lines, vent pipes.											
Small air intakes including :	2.09	4.15	8.674								
- 2 air intake grids	1.03	4.15	4.274								
- 2 air intakes	1.06	4.15	4.400								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb-in)	1		2		3		4	
				In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry	In Aircraft	Chart A entry
Air intake assemblies (sand filter)	68.78	165.7	11400.7								
- Equipment to be removed :											
- 2 air intake grids	3.26	163.4	533.1								
- 2 standard air intakes	3.79	163.4	619.5								
Battery rack	2.36	149.6	353.3								
LTV reinforced tank	66.24	120.0	8071.9								
STARBOARD additional fuel tank, including :	36.64	123.6	4530.5								
Removable parts : - attaching (elastic cords)											
fuel lines, vent pipes.											
PORT additional fuel tank, including :	38.65	123.6	4778.4								
Removable parts : - attaching (elastic cords),											
fuel lines, vent pipes.											
Small air intakes including :	4.61	163.4	752.9								
- 2 air intake grids	2.27	163.4	371.0								
- 2 air intakes	2.34	163.4	381.9								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
12. ARMAMENT											
Machine gun installation											
- NATO FN MAG 7.62 machine gun (Belgian)		2.120									
- NATO AA NF1 7.62 machine gun	9.950	2.120	21.094								
- Tripod mounting	5.210	2.120	11.045								
- Ammunition box (not loaded)	0.480	1.940	0.931								
- Cradle	4.850	2.120	10.282								
- Expended case bag	0.820	2.170	1.779								
SS 11 missile installation											
- Two support assemblies with rocket launcher	73.720	2.669	196.782								
- Remote control stick with support	1.460	1.195	1.735								
- T 10 K5 control panel	9.830	1.725	16.957								
- Control panel support	0.370	1.715	0.365								
- Cables	4.300	2.375	10.212								
- Selector panel	2.970	0.765	2.272								
- COTELEC gun sight		1.135									
- COTELEC gun sight support	2.430	0.975	2.369								
- SFOM 83 A gun sight	0.888	1.225	1.088								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
12. ARMAMENT											
Machine gun installation											
- NATO FN MAG 7.62 machine gun (Belgian)		83.46									
- NATO AA NF1 7.62 machine gun	21.94	83.46	1831.11								
- Tripod mounting	11.48	83.46	958.12								
- Ammunition box (not loaded)	1.05	76.37	80.18								
- Cradle	10.69	83.46	892.18								
- Expended case bag	1.80	85.43	153.77								
SS 11 missile installation											
- Two support assemblies with rocket launcher	162.52	105.07	17075.97								
- Remote control stick with support	3.21	47.04	150.99								
- T 10 K5 control panel	21.67	67.91	1471.60								
- Control panel support	0.81	67.51	54.68								
- Cables	9.47	93.50	885.44								
- Selector panel	6.54	30.11	196.91								
- COTELEC gun sight		44.68									
- COTELEC gun sight support	5.35	38.38	205.33								
- SFOM 83 A gun sight	1.95	48.22	94.02								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
- Gun sight support with selector panel	3.910	0.980	3.832								
- APX BEZU 260 sight (alternative)	33.950	1.220	41.420								
AS 12 missile installation											
- R.H. and L.H. support assemblies	56.580	2.793	158.030								
- T 10 K5 control panel	9.830	1.725	16.957								
- Control panel support	0.370	1.715	0.695								
- Cables	4.300	2.375	10.212								
- Selector panel	2.970	0.765	2.272								
- COTELEC gun sight		1.135									
- COTELEC gun sight support	2.430	0.975	2.369								
- SFOM 83 A gun sight	0.888	1.225	1.088								
- Gun sight support with selector panel	3.910	0.980	3.832								
- APX BEZU 260 sight (alternative)	33.950	1.220	41.420								
Rocket launcher assembly	35.000	2.830	99.050								
MG 151/20 cannon installation	186.154	1.691	314.793								
- Cannon assembly	43.740	1.925	84.200								
- SFOM 83-A3 gun sight	0.688	1.975	1.359								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
- Gun sight support with selector panel	8.62	38.58	332.55								
- APX BEZU 260 sight (alternative)	74.84	48.03	3594.56								
AS 12 missile installation											
- R.H. and L.H. support assemblies	124.72	109.96	13714.21								
- T 10 K5 control panel	21.67	67.91	1471.60								
- Control panel support	0.81	67.51	54.68								
- Cables	9.47	93.50	885.44								
- Selector panel	6.54	30.11	196.91								
- COTELEC gun sight		44.68									
- COTELEC gun sight support	5.35	38.38	205.33								
- SFOM 83 A gun sight	1.95	48.22	94.02								
- Gun sight support with selector panel	8.62	38.58	332.55								
- APX BEZU 260 sight (alternative)	74.84	48.03	3594.56								
Rocket launcher assembly	77.16	111.41	8596.39								
MG 151/20 cannon installation	410.40	66.57	27320.32								
- Cannon assembly	96.40	75.78	7305.19								
- SFOM 83-A3 gun sight	1.51	77.75	117.40								

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CHART D (Continued)

METRIC

DESCRIPTION	Weight (kg)	Arm (m)	Moment (m.kg)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
- Cradle	24.150	1.945	46.972								
- Expended case bag	1.006	2.160	2.173								
- Mount fork	23.310	1.900	44.289								
- Cannon support beam	31.790	2.045	65.010								
- Additional cannon barrel in rack	10.330	2.400	24.792								
- Flexible feed chute	2.420	1.515	3.666								
- Two empty ammunition boxes	21.800	0.850	18.530								
- Ammunition box armour plate	18.300	0.775	14.182								
- Ammunition box support	5.460	0.845	4.614								
- Safety cable and strap	0.760	2.210	1.680								
- Flying controls protective plate	2.400	1.390	3.336								
Aircraft tool kit											
Bellows for inflation of floats	3.230										
Pressure gauge for checking float pressure	0.240										
Towing bar	2.810	3.365	9.455								

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CHART D (Continued)

ENGLISH

DESCRIPTION	Weight (lb)	Arm (in)	Moment (lb.in)	1		2		3		4	
				In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry	In aircraft	Chart A entry
- Cradle	53.24	76.57	4076.58								
- Expended case bag	2.21	85.03	187.91								
- Mount fork	51.39	74.80	3843.97								
- Cannon support beam	70.08	80.51	5642.14								
- Additional cannon barrel in rack	22.77	94.48	2151.30								
- Flexible feed chute	5.33	59.64	317.88								
- Two empty ammunition boxes	48.06	33.46	1608.08								
- Ammunition box armour plate	40.34	30.51	1230.77								
- Ammunition box support	12.03	33.26	400.11								
- Safety cable and strap	1.67	87.00	145.29								
- Flying controls protective plate	5.29	54.72	289.46								
Aircraft tool kit											
Bellows for inflation of floats	7.12										
Pressure gauge for checking float pressure	0.529										
Towing bar	6.19	132.48	820.05								

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METRIC

CHART E

WEIGHTS AND LONGITUDINAL MOMENT OF VARIABLE LOAD ITEMS

(Refer. to par. 4.1.3.)

WEIGHT (kg)	PILOT, FRONT PASSENGERS Arm : 1.385 m	REAR PASSENGERS Arm : 2.195 m	HOIST OPERATOR Arm : 1.300 m	CABIN CARGO* FRONT AREA Arm : 1.440 m	CABIN CARGO* REAR AREA Arm : 2.0 m	LOAD ON HOIST Arm : 2.028 m	LOAD ON SLING Arm : 2.975 m
	LONGITUDINAL MOMENT in m.kg.						
1	1.4	2.2	1.3	1.4	2.0	2.0	3.0
2	2.8	4.4	2.6	2.9	4.0	4.1	6.0
5	6.9	11.0	6.5	7.2	10.0	10.1	14.9
10	13.9	22.0	13.0	14.4	20.0	20.3	29.8
25	34.6	54.9	32.5	36.0	50.0	50.7	74.4
50	69.3	109.8	65.0	72.0	100.0	101.4	148.8
75	103.9	164.6	97.5	108.0	150.0	152.1	223.1
100	138.5	219.5	130.0	144.0	200.0	202.8	297.5
125	173.1	274.4		180.0	250.0	253.5	371.9
150	207.8	329.3		216.0	300.0	304.2	446.3
175	242.4	384.1			350.0	354.9	520.6
200	277.0	439.0			400.0		595.0
225	311.6	493.9			450.0		669.4
250	346.3	548.8			500.0		743.8
275	380.9	603.6			550.0		818.1
300	415.5	658.5			600.0		892.5

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May 6, 1969

ENGLISH

CHART E

WEIGHTS AND LONGITUDINAL MOMENT OF VARIABLE LOAD ITEMS

(Refer. to par. 4.1.3)

Weight (lb)	PILOT, FRONT PASSENGERS Arm : 54.55 in	REAR PASSENGERS Arm : 86.45 in	HOIST OPERATOR Arm : 56.59 in	CABIN CARGO*		LOAD ON HOIST Arm : 79.87 in	LOAD ON SLING 117.17 in
				FRONT AREA Arm : 56.59 in	REAR AREA Arm : 78.74 in		
	LONGITUDINAL MOMENT (lb. in)						
2	110	170	100	110	160	160	230
5	270	430	250	280	390	400	580
10	540	860	510	570	790	800	1170
20	1090	1720	1020	1130	1570	1600	2340
50	2720	4320	2560	2830	3940	3990	5850
100	5450	8640	5120	5670	7870	7990	11720
150	8180	12960	7680	8490	11810	11970	17570
200	10910	17290	10240	11340	15750	15970	23430
250	13630	21610	12800	14150	19690	19970	29290
300	16360	25930		16980	23620	23960	35150
350	19090	30250			27560	27950	41000
400	21820	34580			31500		46860
450	24540	38900			35440		52720
500	27270	43220			39370		58580
550	30000	47540			43300		64440
600	32730	51870			47240		70300

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METRIC

CHART E (Continued)

WEIGHT (kg)	PILOT, FRONT PASSENGERS Arm : 1.385 m	REAR PASSENGERS Arm : 2.195 m	HOIST OPERATOR Arm : 1,300 m	CABIN CARGO* FRONT AREA Arm : 1.440 m	CABIN CARGO* REAR AREA Arm : 2,0 m	LOAD ON HOIST Arm : 2.028 m	LOAD ON SLING Arm : 2.975 m
		LONGITUDINAL MOMENT in m.kg.					
325		713.4			650.0		966.9
350		768.3			700.0		1041.3
375		823.1			750.0		1115.6
400		878.0			800.0		1190.0
425					850.0		1264.4
450					900,0		1338.8
475					950.0		1413.1
500					1000.0		1487.5
525					1050.0		1561.9
550					1100.0		1636,3
575					1150.0		1710.6
600					1200.0		1785.0
625							1859.4
650							1933.8
675							2008.1
700							2082.5
725							2156.9
750							2231.3

* NOTE : The moments for cabin cargo are average moments corresponding to area "B" for the front area and to the total "ACD" area for the rear area (refer to fig. 2.3.9)

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ENGLISH

CHART E

(continued)

WEIGHT (lbs)	PILOT, FRONT PASSENGERS Arm : 54.55 in	REAR PASSENGERS Arm : 86.45 in	HOIST OPERATOR Arm : 51.2 in	CABIN CARGO* FRONT AREA Arm : 56.59 in	CABIN CARGO* REAR AREA Arm : 78.74 in	LOAD ON HOIST Arm : 79.87 in	LOAD ON SLING Arm : 117.17 in
	LONGITUDINAL MOMENT (lb. in.)						
650		56190			51180		76160
700		60510			55120		82010
750		64830			59060		87870
800		69160			62990		93730
850					66930		99590
900					70860		105450
950					74800		111310
1000					78740		117170
1050					82680		123020
1100					86610		128890
1150					90550		134740
1200					94490		140610
1250							146460
1300							152320
1350							158170
1400							164030
1450							169890
1500							175750

* NOTE : The moments for cabin cargo are average moments corresponding to area "B" for the front area and to the total "ACD" area for the rear area (refer to fig. 2.3.9)

METRIC

CHART E - (continued)

FUEL C.G. TABLE

. with cubic tank
. in metric units

Quantity (litres)	Arm (m)	FUEL TR4 (specific gravity = 0.78)		FUEL TRO (specific gravity = 0.79)	
		Weight (kg)	Moment (m.kg)	Weight (kg)	Moment (m.kg)
10	3.010	7.8	23.5	7.9	23.8
25	3.064	19.5	59.7	19.75	60.5
50	3.084	39.0	120.3	39.50	121.8
75	3.095	58.5	181.1	59.25	183.4
100	3.101	78.0	241.9	79.00	245.0
125	3.105	97.5	302.7	98.75	306.6
150	3.108	117.0	363.6	118.50	368.3
175	3.110	136.5	424.5	138.25	430.0
200	3.111	156.0	485.3	158.00	491.5
225	3.112	175.5	546.2	177.75	553.2
250	3.113	195.0	607.0	197.50	614.8
275	3.115	214.5	668.2	217.25	676.7
300	3.116	234.0	729.1	237.00	738.5
325	3.117	253.5	790.2	256.75	800.3
350	3.118	273.0	851.2	276.50	862.1
375	3.119	292.5	912.3	296.25	924.0
400	3.120	312.0	973.4	316.00	985.9
425	3.121	331.5	1034.6	335.75	1047.9
450	3.123	351.0	1096.2	355.50	1110.2
475	3.124	370.5	1157.4	375.25	1172.3
500	3.125	390.0	1218.8	395.00	1234.4
525	3.127	409.5	1280.5	414.75	1296.9
550	3.128	429.0	1341.9	434.50	1359.1
560	3.128	436.8	1366.3	442.40	1383.8

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ENGLISH

CHART E - (continued)

FUEL C.G. TABLE

. with cubic tank
. in metric units.

Quantity (U.S. gal.)	Arm (in.)	FUEL TR4 (Specific gravity = 0.78)		FUEL TRO (specific gravity = 0.79)	
		Weight (lb)	Moment (lb.in)	Weight (lb)	Moment (lb.in)
3	118.80	19.5	2 316	19.8	2 352
5	119.90	32.6	3 908	33.0	3 956
10	121.17	65.1	7 888	65.9	7 985
15	121.57	97.6	11 865	98.9	12 023
20	121.87	130.2	15 867	131.8	16 062
25	122.05	162.7	19 257	164.8	20 114
30	122.17	195.3	23 860	197.8	24 153
35	122.28	227.8	27 855	230.7	28 210
40	122.37	260.4	31 865	263.7	32 269
45	122.42	293.0	35 869	296.7	36 322
50	122.47	325.5	39 864	329.6	40 366
55	122.50	358.0	43 855	362.6	44 418
60	122.53	390.5	47 848	395.6	48 473
65	122.56	423.1	51 855	428.5	52 517
70	122.61	455.6	55 861	461.5	56 584
75	122.64	488.2	59 873	494.4	60 633
80	122.68	520.7	63 879	527.4	64 701
85	122.71	553.3	67 895	560.4	68 766
90	122.74	585.8	71 901	593.3	72 822
95	122.77	618.4	75 921	626.3	78 891
100	122.80	650.9	79 930	659.3	80 962
105	122.84	683.5	83 961	692.2	85 030
110	122.87	716.0	87 975	725.2	89 103
115	122.92	748.5	92 005	758.2	93 198
120	122.96	781.1	96 044	791.1	97 274
125	122.99	813.6	100 064	824.1	101 356
130	123.03	846.2	104 108	857.0	105 437
135	123.07	878.7	108 141	890.0	109 532
140	123.11	911.3	112 190	923.0	113 630
145	123.14	943.8	116 219	955.9	117 709
148	123.16	963.30	118 640	975.7	120 167

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FUEL C.G. TABLE
. with a four-lobe main tank
. in metric units

Metric units (Moment)

QUANTITY Specific gravity = 0.79		Main fuel tank ONLY	Main fuel tank + 1 additional tank	Main fuel tank + 2 additional tanks
Litres	kg	m.kg	m.kg	m.kg
50	39,50	122,687	122,687	122,687
100	79,00	245,137	245,137	245,137
150	118,50	367,824	367,666	367,582
200	158,00	490,906	490,090	489,642
250	197,50	614,423	612,937	611,888
300	237,00	738,255	736,049	734,653
350	276,50	862,404	859,429	857,479
400	316,00	986,868	982,846	980,441
450	355,50	1112,004	1106,698	1103,883
500	395,00	1237,140	1230,883	1227,265
550	434,50	1362,592	1355,640	1350,911
575	454,25	1424,526	1418,078	1412,849
600	474,00		1480,316	1474,842
650	513,50		1605,817	1599,489
700	553,00		1730,511	1723,839
705	556,95		1742,898	1736,33[illegible]
750	592,50			1848,861
800	632,00			1974,131
835	659,65			2061,269

NOTE : These moments, computed with the four-lobe tank c.g. determination curve, remain applicable when the aircraft is fitted with a cubic tank.

FUEL C.G. TABLE

. with a four-lobe main tank
. in metric units.

Imperial units (Moment)

QUANTITY Specific gravity = 0.79		Main fuel tank ONLY	Main fuel tank + 1 additional tank	Main fuel tank + 2 additional tanks
US Gal	lb	in lb	in lb	in lb
10	65,92	8061,2	8061,2	8061,2
20	131,84	16106,5	16106,5	16106,5
30	197,76	24159,9	24159,9	24159,9
40	263,68	32223,3	32208,2	32197,9
50	329,61	40305,2	40257,7	40232,3
60	395,53	48412,8	48305,6	48259,6
70	461,45	56536,2	56378,7	56296,5
80	527,37	64674,9	64483,6	64362,0
90	593,29	72829,5	72590,2	72413,5
100	659,21	80999,4	80691,1	80501,4
110	725,13	89213,7	88841,8	88593,1
120	791,05	97417,3	96976,9	96705,9
130	856,97	105670,5	105128,2	104832,6
140	922,89	113871,5	113292,8	112929,9
150	988,81	122083,2	121496,4	121082,2
152	1002,00	123710,9	123150,1	122733,0
160	1054,73		129688,6	129240,9
170	1120,65		137907,2	137397,8
180	1186,57		146123,2	145578,1
186	1226,12		151068,9	150492,6
190	1252,49			153776,0
200	1318,41			162001,5
210	1384,33			170291,5
220	1450,25			178466,9
221	1456,85			179281,8

NOTE : These moments, computed with the four-lobe tank c.g. determination curve, remain applicable when the aircraft is fitted with a cubic tank.

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APPENDIX 1

SA 316 B

AIRCRAFT WITH A MAXIMUM WEIGHT OF 2200 Kg

Flights at 2200 kg (4850 lb) for the ALOUETTE III 316B are permissible under the conditions

1) Assemblies

The minimum basic standard of this version comprises the following main components :

Main rotor blades	3160S.11.10.000.16 to 31, 42 to 51, 62 to 71,.95
Main rotor hub	3160S.12.20.000.3
Drag hinge damper	3130S.13.50.000.50, 3130S.13.60.000
Blade spacing cables	3160S.14.60.000
Body structure assy	3160S.22.11.000.1
Tail boom	3160S.23.10.000.11 or 3160S.73.81.245.11
Tail rotor hub	3160S.33.00.000.6
Tail rotor blades	3160S.34.10.000.10
Freewheel unit	3160S.60.10.000
Clutch unit	3160S.63.10.000.1 or 3160S.63.20.000
Tail rotor drive shaft	3160S.65.10.000
Tail rotor gearbox	3160S.66.10.000.3
Inclined drive shaft	3160S.67.11.000
Coupling shaft	3130S.67.12.000
Main rotor shaft	3160S.68.10.000.1
Tail rotor wires/cables	3160S.88.12.115 and 3160S.88.12.116
Engine	Artouste IIIB with M19 + MB Artouste IIIB with M19 + M54
M.G.B (Embodiment of Modification AM 1749 or AM 2017 is imparative in this case).	3160.62.000.10 to .12 + AM 1212 3160.62.000.13 .14 3160.62.000.15 .16 + AM 1212 3160.62.000.17 .18 or with a dash number above 18 319A.62.000.1 or with a dash number above 1*

M.G.B. with S/N above 10.000 (AM 1749 embodied) or with AM 2017

2) Specific modifications

Embodiment of the following modifications is imperative.

AM 855 : Reinforcement of main landing gear (see Service Bulletin N°32.23)

AM 1422 : Modification of temperature values on T4 temperature indicator and chart (see Service Bulletin N°11.04)

AM 1452 : New inscriptions and instruction plates for SA 316B. (see Service Bulletin N° 11.04).

*Note : Installation of a strengthened M.G.B. (319 type M.G.B.), indicated by installation of a nameplate in the cockpit, gives improved performance of the aircraft at altitude. Specific performance figures for SA 316B aircraft fitted with a 319 type reinforced gearbox are summarized at the end of this appendix and modifications which affect the Flight Manual are included in the text.

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SUD AVIATION

S.A. 316 B ALOUETTE III

FLIGHT MANUAL

APPENDIX 1

SECTION 1 - OPERATING LIMITATIONS

CONTENTS

THE LIMITATIONS LAID DOWN IN THIS SECTION ARE IMPERATIVE

IMPORTANT NOTE

ONLY THE PARAGRAPHS PERTAINING TO LIMITATIONS APPLICABLE TO THE SA 316E HELICOPTER, AND DIFFERENT FROM THE SE 3160 HELICOPTER, ARE MENTIONED IN THIS SECTION.
THE TITLES OF THE OTHER PARAGRAPHS ARE GIVEN FOR REFERENCE ONLY, AND REFER BACK TO SECTION 1 "LIMITATIONS" OF THE SE 3160 FLIGHT MANUAL.

1.1. WEIGHT LIMITATIONS

- Maximum permissible weight : 2200 kg (4850 lb)
- Minimum permissible weight : 1200 kg (2645 lb)

1.2 CENTRER OF GRAVITY LIMITS (See section 1 "LIMITATION - SE 3160)

1.3 POWER UNIT ("TURBOMECA" ARTOUSTE III B or III B1 TURBO SHAFT ENGINE)

NOTE : Installation of a TURBOMECA ARTOUSTE III B1 engine is authorized under the same conditions as those for the ARTOUSTE III B engine.

1.3.1. Engine speed

33500 rpm true held constant by governor within ± 200 rpm. Transient variat of ± 1000 rpm are permissible during rapid changes in collective pitch.

1.3.2. Tail pipe temperature - T4

MAXIMUM on take-off (5mn) : 550° C

MAXIMUM CONTINUOUS : 500°C

1.3.3. Fuel

- Fuel quantities : refer to paragraph 1.3.3 of section 1 "LIMITATIONS" for SE 3160 aircraft.

- Normal fuels, unrestricted

FRENCH	SPECIFICATIONS US	BRITISH	NATO	REMARKS
Aviation Fuels * AIR 3405 (TRO)		D.Eng.RD 2453 AVTUR FS II	F34	
	ASTM Jet A			
	ASTM Jet A1	D.Eng RD 2494 AVTUR	F35	
Aviation Fuels * AIR 3407 (TR4)	MIL-T-5624 (JP.4)	D.Eng RD 2454 AVTAG FS II	F40	
	ASTM Jet B	D.Eng RD 2486 AVTAG	F45	
Aviation Fuels * AIR 3404 (TR5)			F42	
	MIL-T-5624 (JP.5)	D.Eng RD 2498 AVCAT	F44	

- Fuels subjected to restrictions on use.

FRENCH	SPECIFICATIONS US	BRITISH	NATO	Restrictions
Gasoline * AIR 3401	MIL-G-5572 (Grade 80/87) (Grade 100/130) (Grade 115/145)		F12	Between any two overhauls of the engine, operation on petroleum spirit (gasoline) may not exceed 25 hours
		D.Eng RD 2485	F18	
			F22	
Automotive Gasoline DCEA/2D MT 80	MIL-G-3056	DEF 2 401	F46	Add 1 to 2% of lubricating oil by volume. (mineral if possible)
Automotive Diesel oil DCEA/21C	VVF 800 DF2	TS.10.003	F54	Not to be used at OAT below - 5°C
	VVF 800 DF1			Not to be used at OAT below - 15°C
	VVF 800 DFA		F56	
Gasoil 0 7120 STM	MIL-F-16884	DEF 2402 (47/0 DIESO)	F75	Not to be used at OAT below - 5°C
Gasoil 20 7120 STM		DEF 2402 (47/20 DIESO)	F76	Not to be used at OAT below 0°C
Illuminating Oil DCEA/11C	VV-K 211	DEF 2403	F58	Not to be used at OAT below - 15°C

NOTE : Refer to current issues and amendments.

NOTE 2 : The use of an approved anti-icing additive is recommended, if none is contained in the fuel, at OAT below + 5° C.

NOTE 3 : Approved additives :

- Anti-icing :
  AIR 3652, NATO S.748, MIL-I-27 686, D.Eng. RD 2451,(with or without glycerine). Any of these additives may be used up to 0.15 % by volume.
- Anti-static : SHELL ASA-3 up to 0.0001 % by volume.

NOTE 4 : When starting the engine on the various "gasoils" (Diesel Oil) listed in the table, the use of an auxiliary starting unit (See Section 2, paragraph 2.3.22) containing one of the fuels marked thus * is :

- recommended in all cases,
- indispensable if t° is below + 10° C.

1.3.4. Engine lubricating oil

	SPECIFICATION				REMARKS
	FRENCH	NATO	AMERICAN	BRITISH	
NORMAL	AIR 3513	0.148	MIL-L-7808		Synthetic oils
	AIR 3514	0.150			
	AIR 3515	0.135	Aeroshell Turbine Oil 3 Esso Aviation utility Oil F Caltex jet engine oil medium heavy	D.Eng.RD 2490	Mineral oil
		0.159	MIL-L-23 699		Synthetic oil

NOTE : Current issue and amendments are to be complied with.

Quantity : 10 litres (2.6 U.S gal.) (Maximum capacity with the system full)

CAUTION: DO NOT MIX OILS OF DIFFERENT SPECIFICATIONS, (EXCEPT OILS TO AIR 3513 AND AIR 3514 WHICH CAN BE MIXED WITHOUT RESTRICTION).

FLUSH THE SYSTEM WHEN CHANGING FROM ONE TYPE OF OIL TO ANOTHER.

1.3.5. Engine oil temperatures

- Maximum ..... 85° C
- Minimum ..... 0° C

1.3.6. Engine oil pressure

	At 33500 rpm			At idling rpm		
	Hpz	bars	p.s.i.	Hpz	bars	p.s.i.
- Maximum	5	5	70	-	-	-
- Minimum	1.5	1.5	20	0.8	0.8	10

1.4. GEARBOXES AND SERVO-UNITS (See section 1 "LIMITATIONS" - SE 3160)

1.5. ROTOR SPEEDS (See Section 1, "LIMITATIONS" - SE 3160)

1.6. POWER-ON FLIGHT COLLECTIVE PITCH LIMITATIONS (1)

DENSITY - ALTITUDE		HOVER		CLIMB	TRANSIENT MANOEUVRES(2)	LEVEL FLIGHT AT MAXIMUM SPEED(3)
metres	feet	with MGB. 3160	with MGB 319			
-1000	-3300	0.73	0.75	0.70	0.78	0.75
0	0	0.78	0.80	0.75	0.83	0.80
1000	3300	0.83	0.85	0.80	0.88	0.85
2000	6600	0.88	0.90	0.85	0.93	0.90
3000	9900	0.93	0.95	0.90	0.98	0.95
4000	13200	0.98	1	0.95	1,03	1
5000 and above	16500 and above	1	1	1	1.05	1

(1) Collective pitch limitations for climb are marked on the collective pitch indicator dial.

(2) In particular, transition to forward flight and end of approach.

(3) Recommended cruising collective pitch is 0.80 from sea level to 1000 metres and equal to climb pitch above 1000 metres (see section 2.2.7).

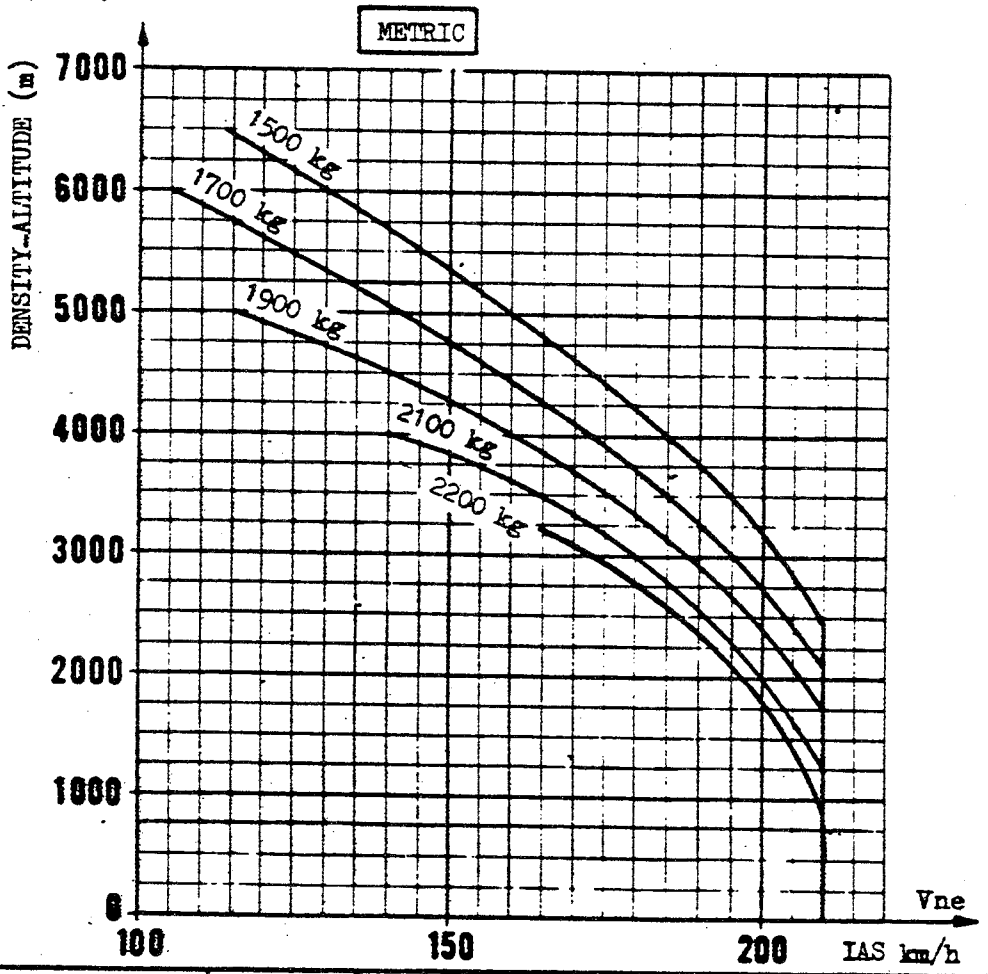
REMARKS : This is of course a continuous law : for example at 600 metres (2000 feet) the hover collective pitch limitation is 0.81.
The limitations are related to density-altitudes easily determined by the pilot through the computer surrounding the collective pitch indicator.

1.7. AIRSPEED LIMITATIONS

1.7.1. Never exceed speed Vne (with or without doors) with internal loads when G.G. is located between 2.78 m and 3.08 from datum.

For helicopters equipped with float type landing gear, see par. 1.11.5
For helicopters equipped with sand filters, see paragraph 1.11.7.

1.7.1.1.

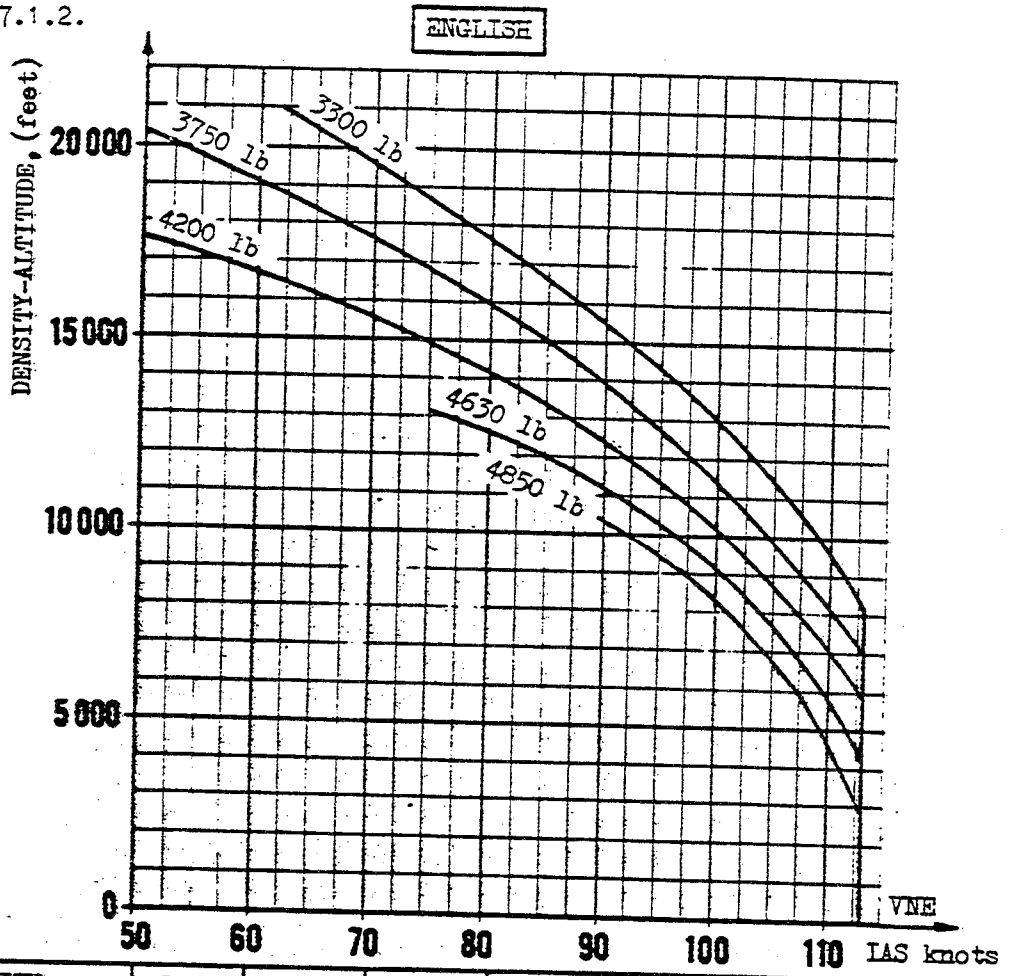


DENSITY ALTITUDE (metres)	0 to 1000	2000	3000	4000	5000	6000
WEIGHT (kg)	SPEED (km/h)					
2200	210	195	172			
2100	210	200	180	140		
1900	210	207	188	160	115	
1700	210	210	195	173.	143	105
1500 or less	210	210	203	185	160	130

NOTE : These Vne are always greater than level flight speed at maximum collective pitch.

Never exceed speed (Vne) with or without doors, with internal loads when C.G. is located between 109.45 and 121.25 inches from datum.

1.7.1.2.



DENSITY - ALTITUDE (feet)	0 to 3000	6000	9000	12000	15000	18000	21000
WEIGHT (lb)	SPEEDS (Knots)						
4850	113	107	97				
4630	113	109	101	85			
4200	113	111	104	92	75	50	
3750	113	113	107	97	84	68	45
3300 or less	113	113	110	102	92	78	62

NOTE : These Vne are always greater than level flight speed at maximum collective pitch

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1.7.2. Sideward and rearward flight

Maximum velocity of relative wind (tail wind or cross wind) 32 km/h (18 knots).

1.8. (RESERVED)

1.9. MANOEUVRING LIMITS (See section 1 "LIMITATIONS" - SE 3160)

1.10. PLACARDS AND INSTRUMENTS MARKINGS

Placards and instrument markings are identical with those existing on the SE 3160 helicopter (see section 1 "LIMITATIONS" in the SE 3160 Flight Manual).
A placard specific to the 316 B helicopter specifies pitch limits.
2 different plates can be fitted depending on the type of main gear box fitted on the helicopter.

- For 3160 type main gear box :

PITCH LIMITS	
CLIMB : SEE INDICATOR	
HOVER : CLIMB + 0.03	not greater than 1
LEVER FLIGHT AT MAXIMUM SPEED : CLIMB + 0.05	not greater than 1
TRANSIENT MANOEUVRE : CLIMB + 0.08, not greater than 1.05	

- For 319 type main gear box

PITCH LIMITS (MGB 319)	
CLIMB : SEE INDICATOR	
HOVER : CLIMB + 0.05	not greater than 1
LEVEL FLIGHT AT MAXIMUM SPEED : CLIMB + 0.05	not greater than 1
TRANSIENT MANOEUVRE : CLIMB + 0.08 not greater than 1.05	

1.11. OPTIONAL EQUIPMENT LIMITATIONS (See section 1 "LIMITATIONS" - SE 3160)
Dynamic sand filters have no effect on limitations.

1.12. MINIMUM CREW (See section 1 "LIMITATIONS" - SE 3160)

1.13. RETIREMENT LIVES (See section 1 "LIMITATIONS" - SE 3160)
Maximum retirement lives of fatigue critical parts are listed in chapter 5 of the Alouette III Maintenance Manual.
See conditions required for the SA 316B helicopter.

1.14. TYPES OF OPERATION APPROVED (See section 1 "LIMITATIONS" - SE 3160)

APPENDIX 1

SECTION 2 - OPERATING PROCEDURE

- CONTENTS -

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IMPORTANT NOTE

FOR THE OPERATING PROCEDURE RELATIVE TO THE SA 316B HELICOPTER, REFER TO THE SE 3160 FLIGHT MANUAL (SECTION 2) EXCEPT FOR THE FOLLOWING POINTS :

2.2.1. FOREWORD

The engine-transmission system is capable of withstanding the following loads :

- 450 h.p. (331 Kw) at maximum continuous power.
- 570 h.p. (420 Kw) at take-off power.

Flight control law is such that :

When the aircraft is fitted with a 3160 type main gear box :

- in hover, in or out of ground effect, the maximum power used is 530 h.p. (390 Kw)
- even when the power used is 530 h.p. (390 Kw) when hovering I.G.E it is possible to climb vertically for a short time using 570 h.p. (420 Kw).

When the aircraft is fitted with a 319 type main gearbox :

- in hover, flight control law is such that maximum power required does not exceed 405 Kw
- the weight that can be sustained in hover out of ground effect with this amount of power is the recommanded take-off weight. At this weight, in ground effect, the available power reserve is sufficient for either vertical climb out of ground effect or transition to forward flight in a steep climb.

In both cases :

- the power required for climb is about 450 h.p. (331 Kw)
- the power required for cruising is about 450 h.p. (331 Kw)

2.2.14. Use of computer

The computer surrounding the collective pitch indicator is used to determine various parameters, as follows :

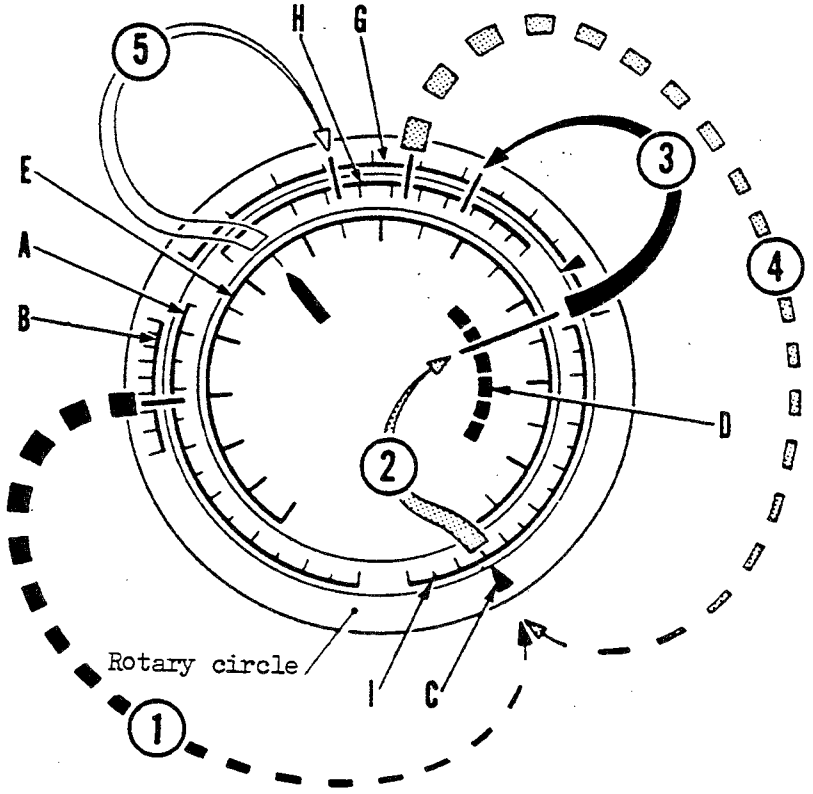
1. Density - Altitude :

1.1 - By means of the rotating circle, line up :
- the O.A.T value (scale B) transferred from the O.A.T indicator.

2.2.14. Use of computer (continued)

- the pressure altitude (scale A) transferred from the altimeter set at 1.013 mb.

1.2. Read the corresponding density altitude value on scale I opposite arrow C.



2 - Maximum permissible collective pitch for hovering in ground affect.

2.1 - Determine density altitude (para. 1)

2.2 - Convert the density altitude figure into kilometers (or thousands of feet) and transfer the result to scale D, then read opposite, on scale E, the corresponding pitch.

2.3 - To obtain the maximum permissible collective pitch for this density altitude, add :

- 0.03 for aircraft fitted with a type 3160 main gear box
- 0.05 for aircraft fitted with a type 319 main gear box

3 - Approximate maximum hover take-off weight

3.1 - In ground effect :

- Determine maximum permissible collective pitch as specified in para. 2 above.
- Transfer this pitch to scale G and read opposite, on scale H, the maximum permissible weight.

3.2 - Sustained flight out of ground effect :
- Reduce the weight determined in para. 3.1 by 5 %.

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2.2.14 Use of computer (continued)

4 Current gross weight during hover in ground effect :

5.1 - Carry out step 1.

5.2 - Read the pitch angle indicated by the needle, on scale E.

5.3 - Transfer the above pitch angle to scale G and read the weight corresponding to this pitch angle, on scale H.

NOTE :

On the SE 3160 helicopter the best cruising altitude is indicated by an arrow C for a given gross weight. It must not be regarded on SA 316B helicopters.

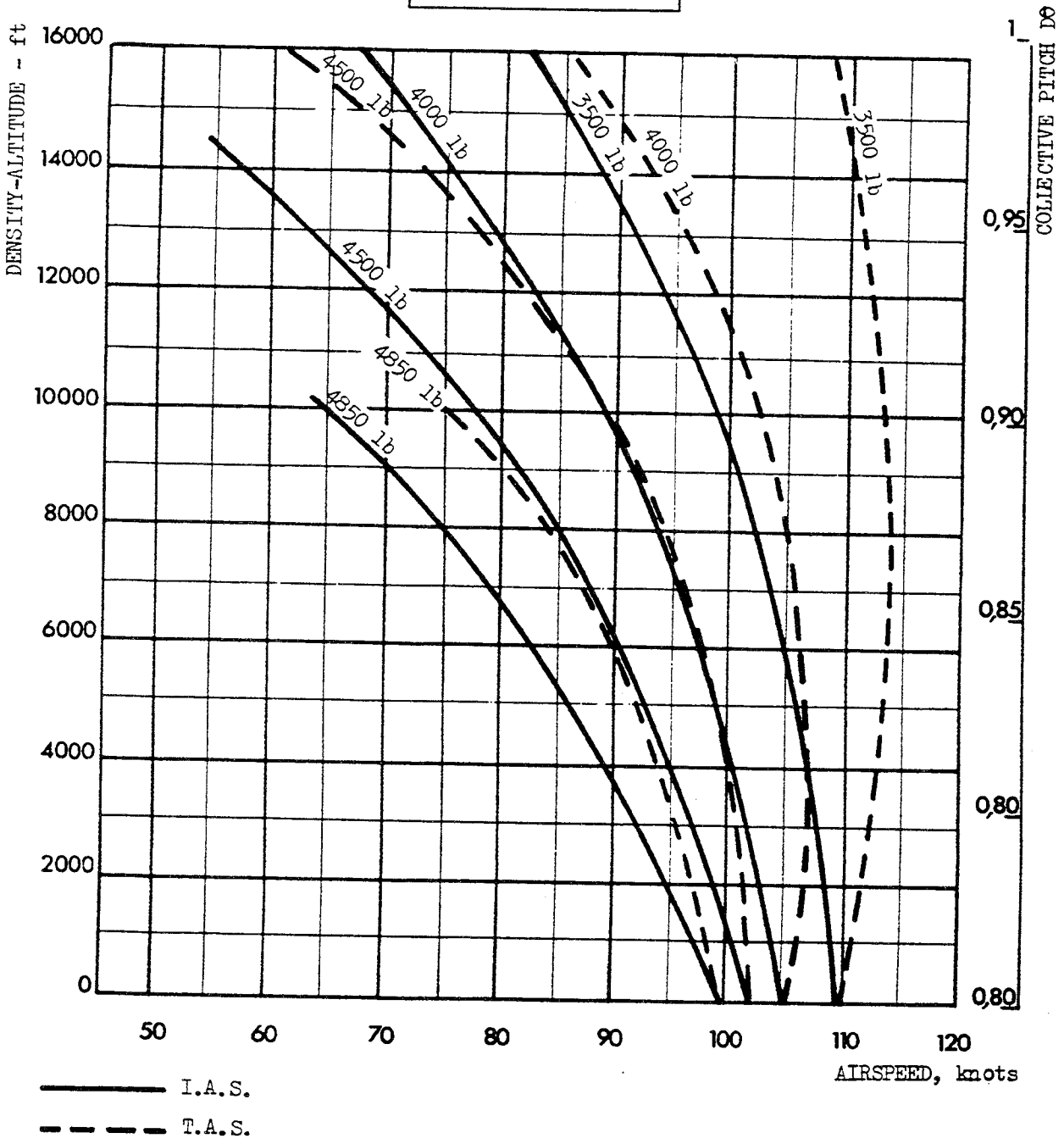
APPENDIX 1

SECTION 3 - PERFORMANCE

CONTENTS

NOTE : The influence of optional equipment on performance is defined in Section 3.

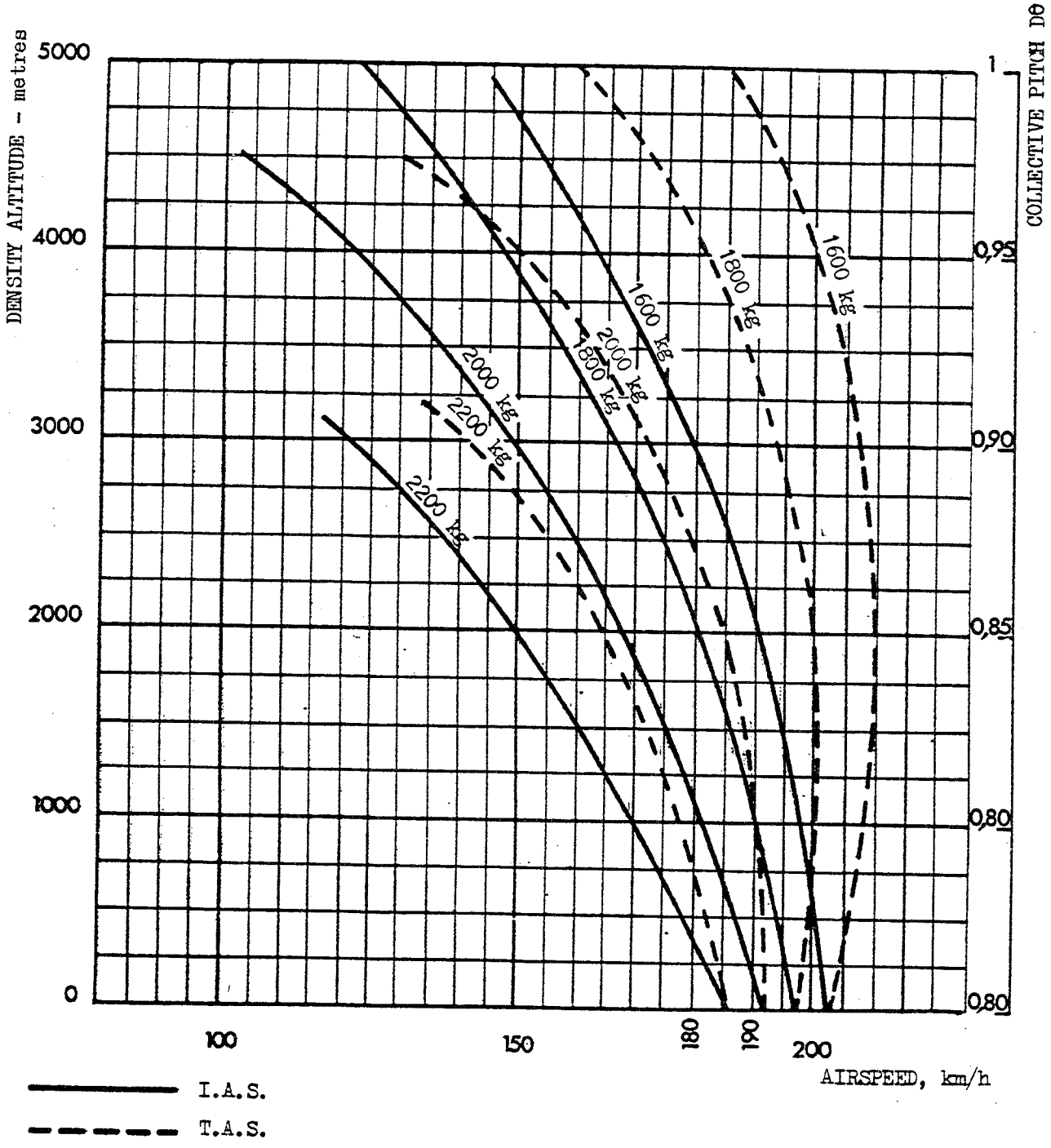
ENGLISH



Cruising speed

Figure 3-1

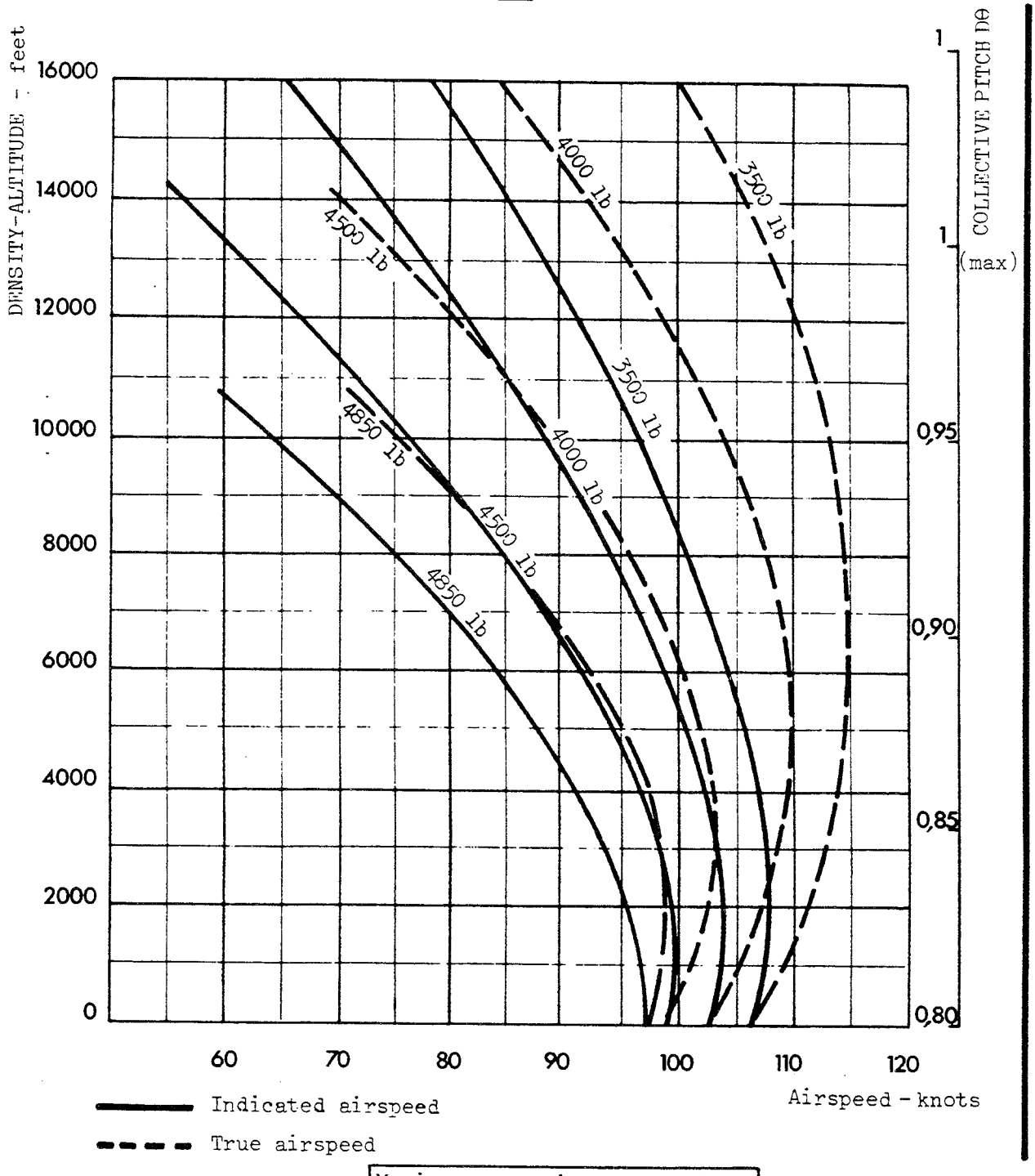
METRIC



Cruising speed

Figure 3-1

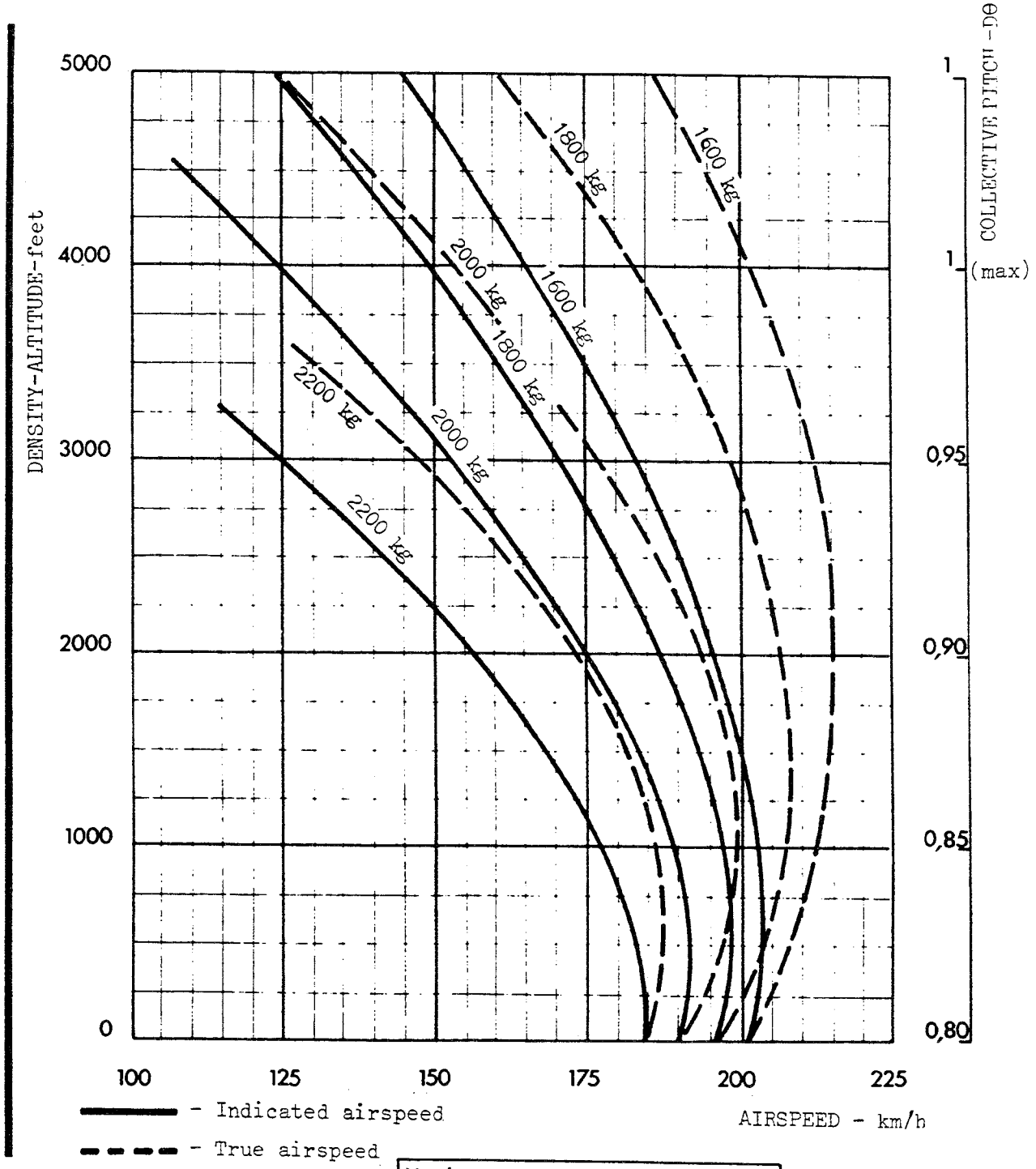
ENGLISH



Maximum speed in level flight

Figure 3-2

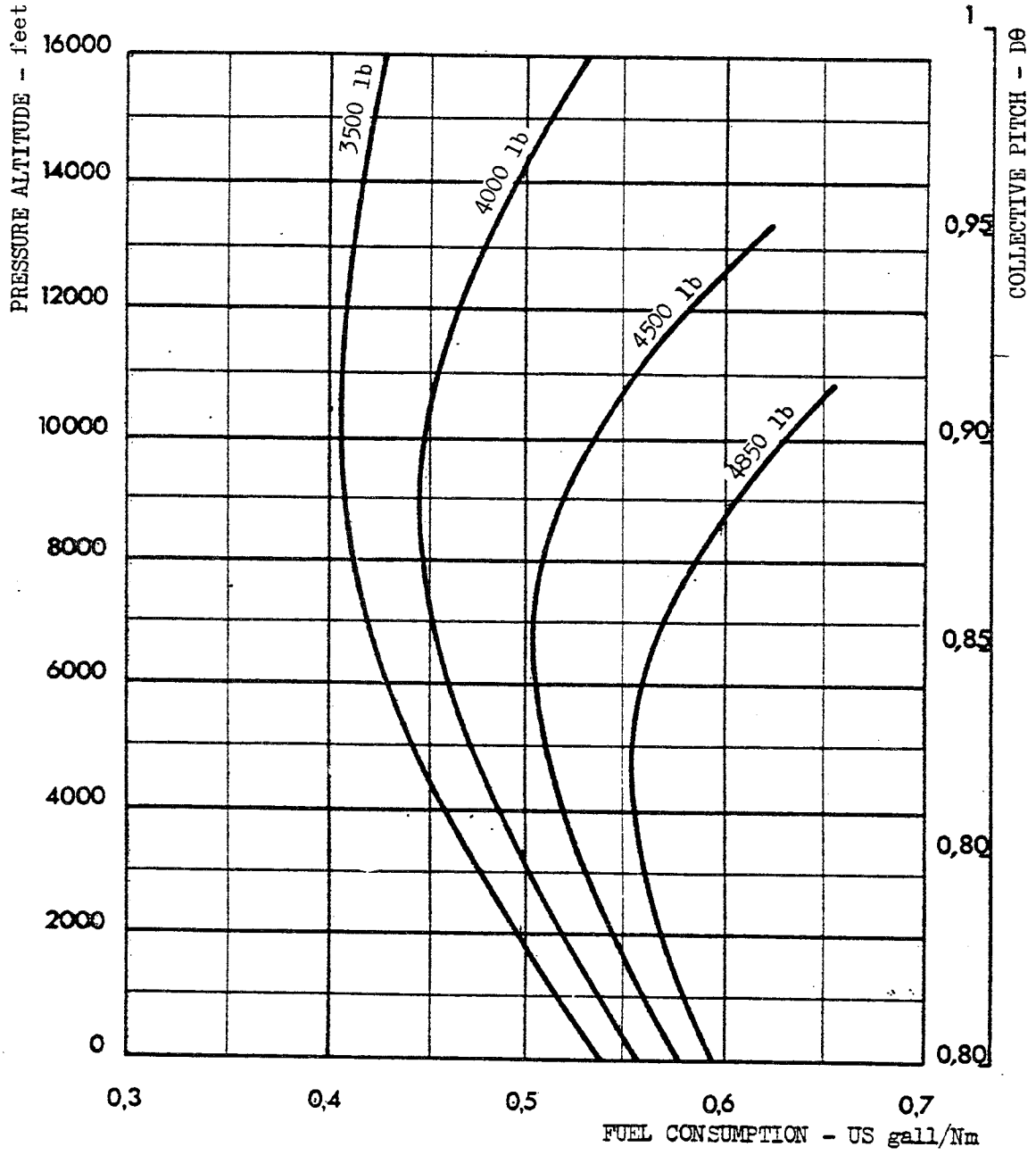
METRIC



Maximum speed in level flight

Figure 3-2

ENGLISH

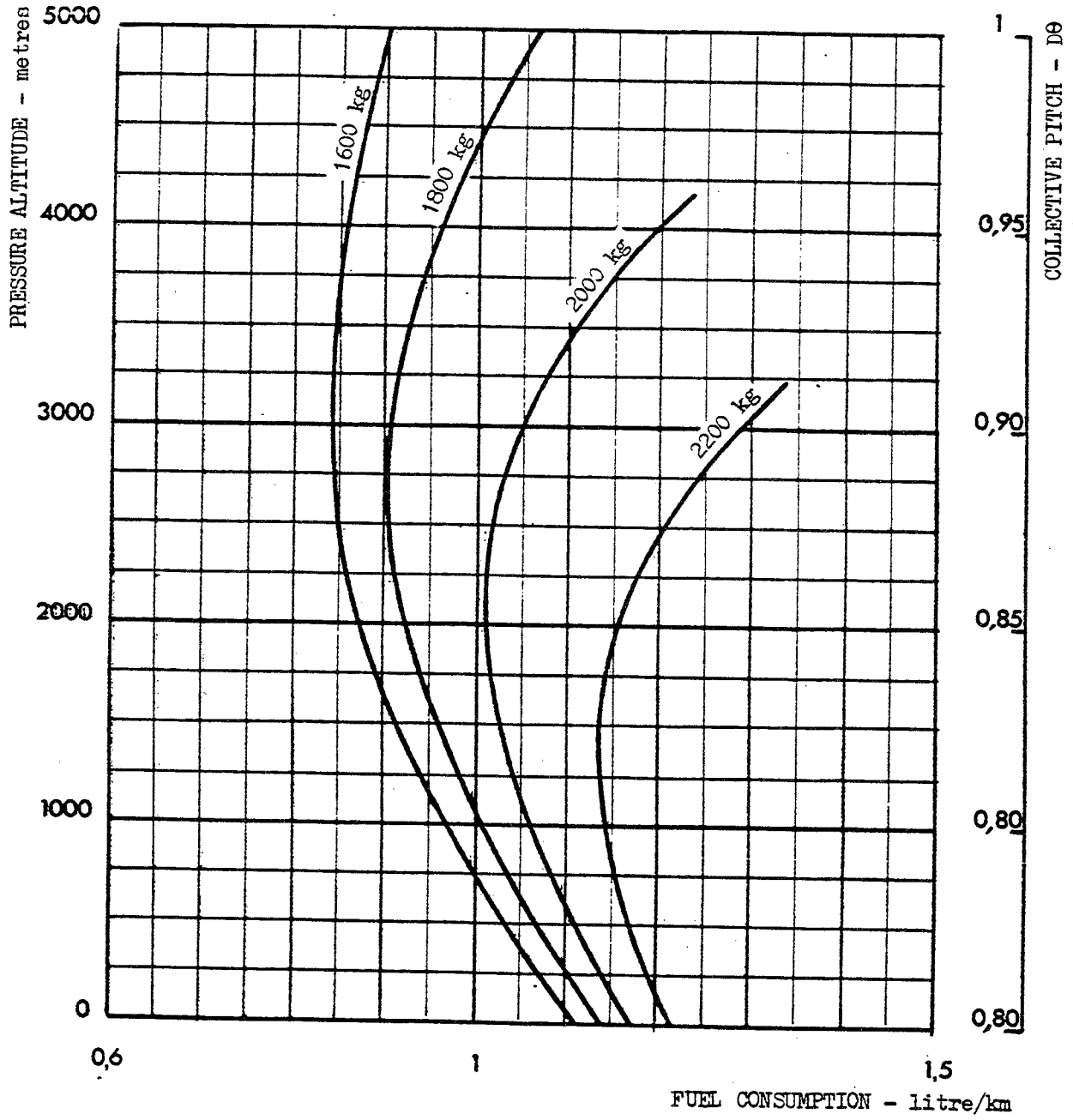


Standard atmosphere

Fuel consumption per nautical mile in cruising flight

Figure 3-3

METRIC

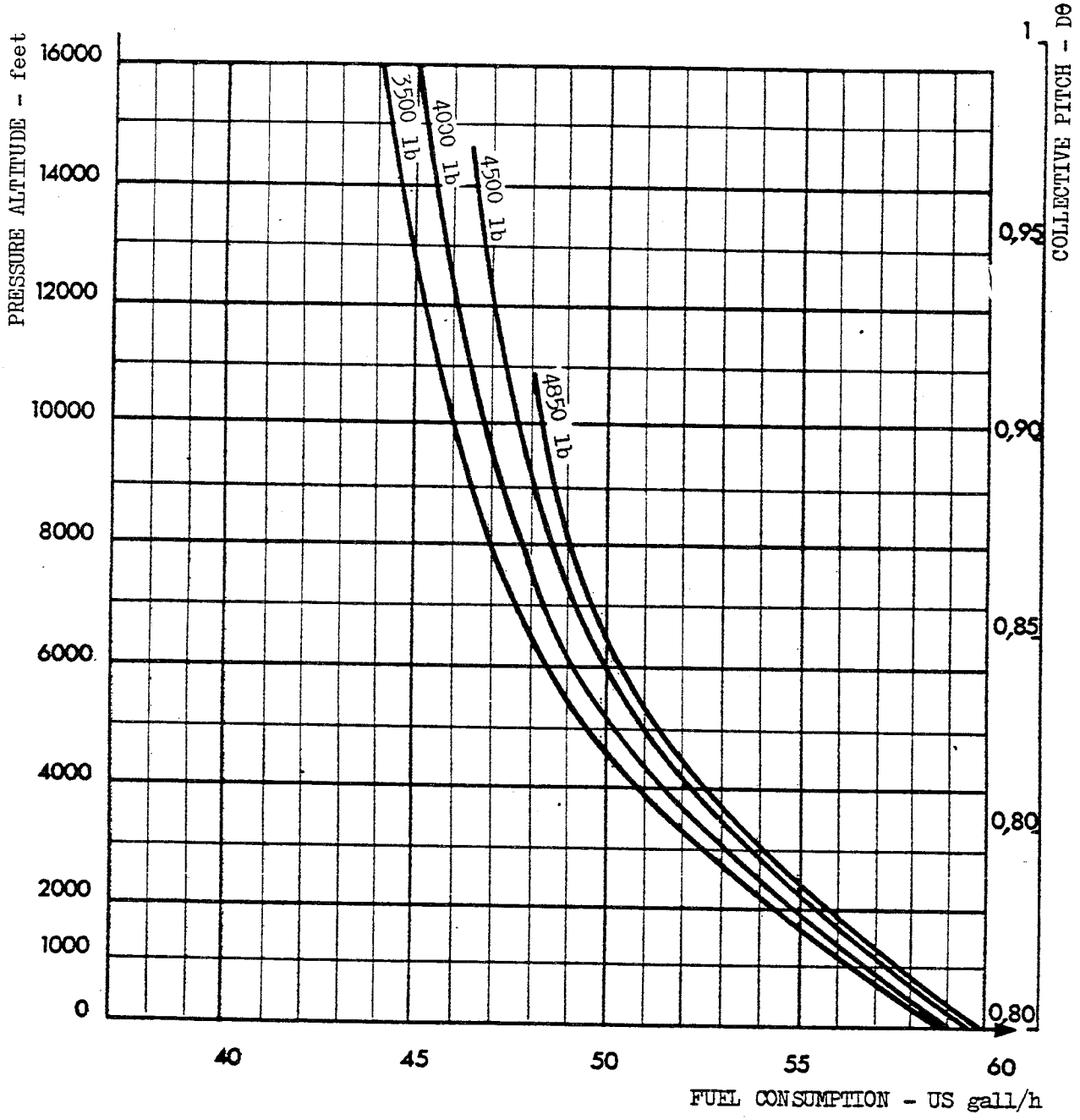


Standard atmosphere

Fuel consumption per kilometre in cruising flight

Figure 3-3

ENGLISH

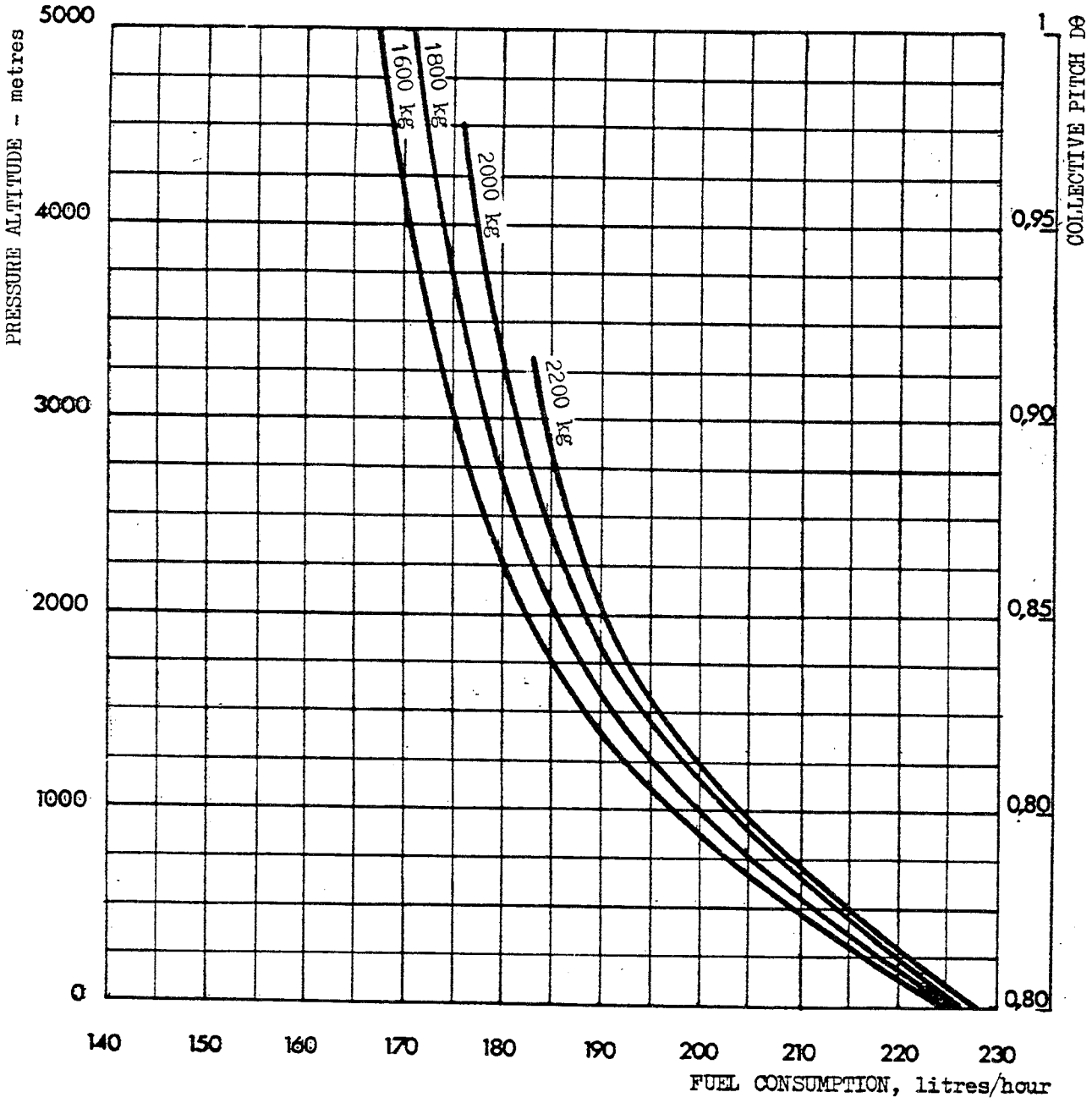


Standard atmosphere

Hourly consumption in cruising flight

Figure 3-4

METRIC

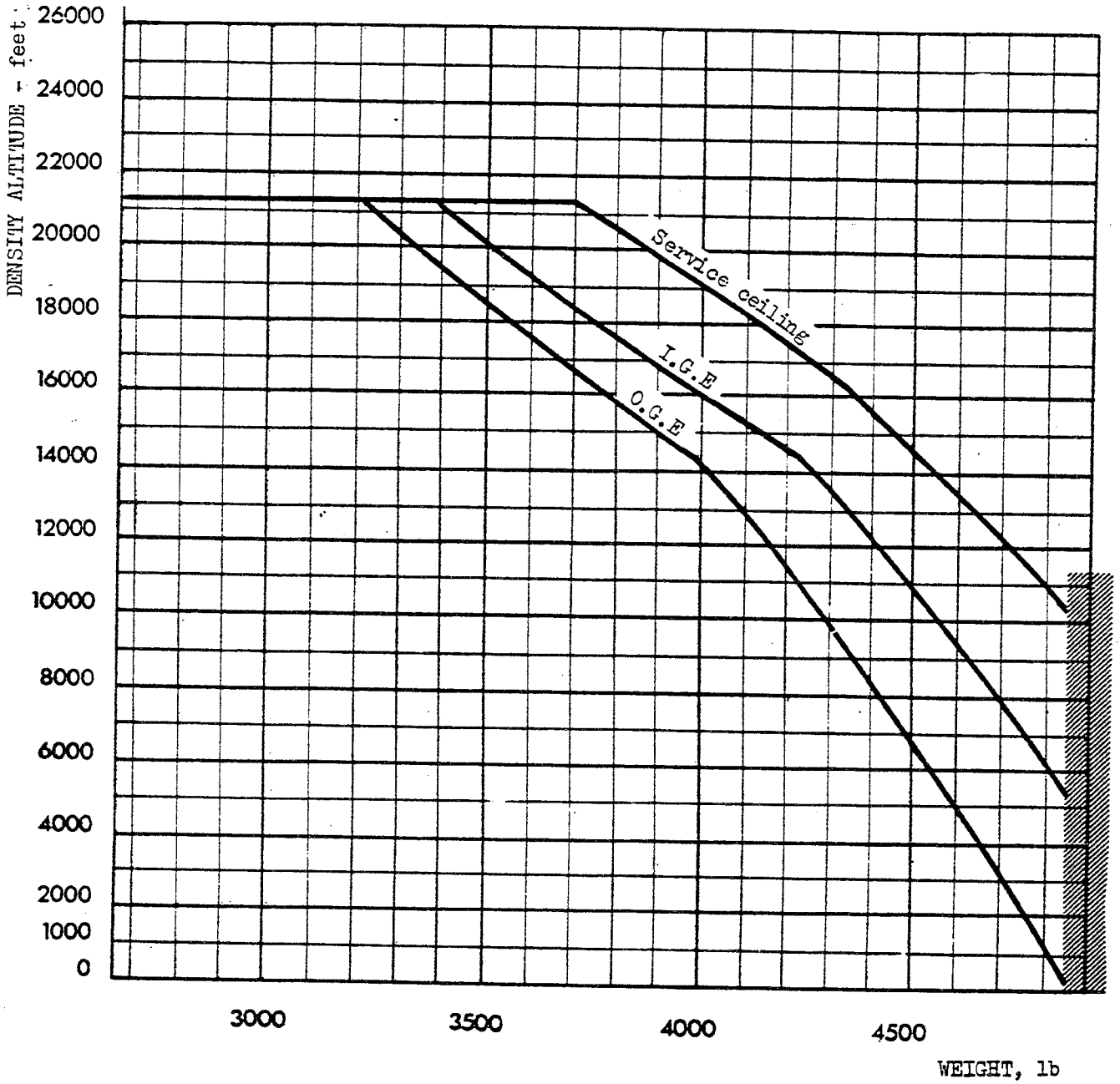


Standard atmosphere

Hourly consumption in cruising flight

Figure 3-4

ENGLISH

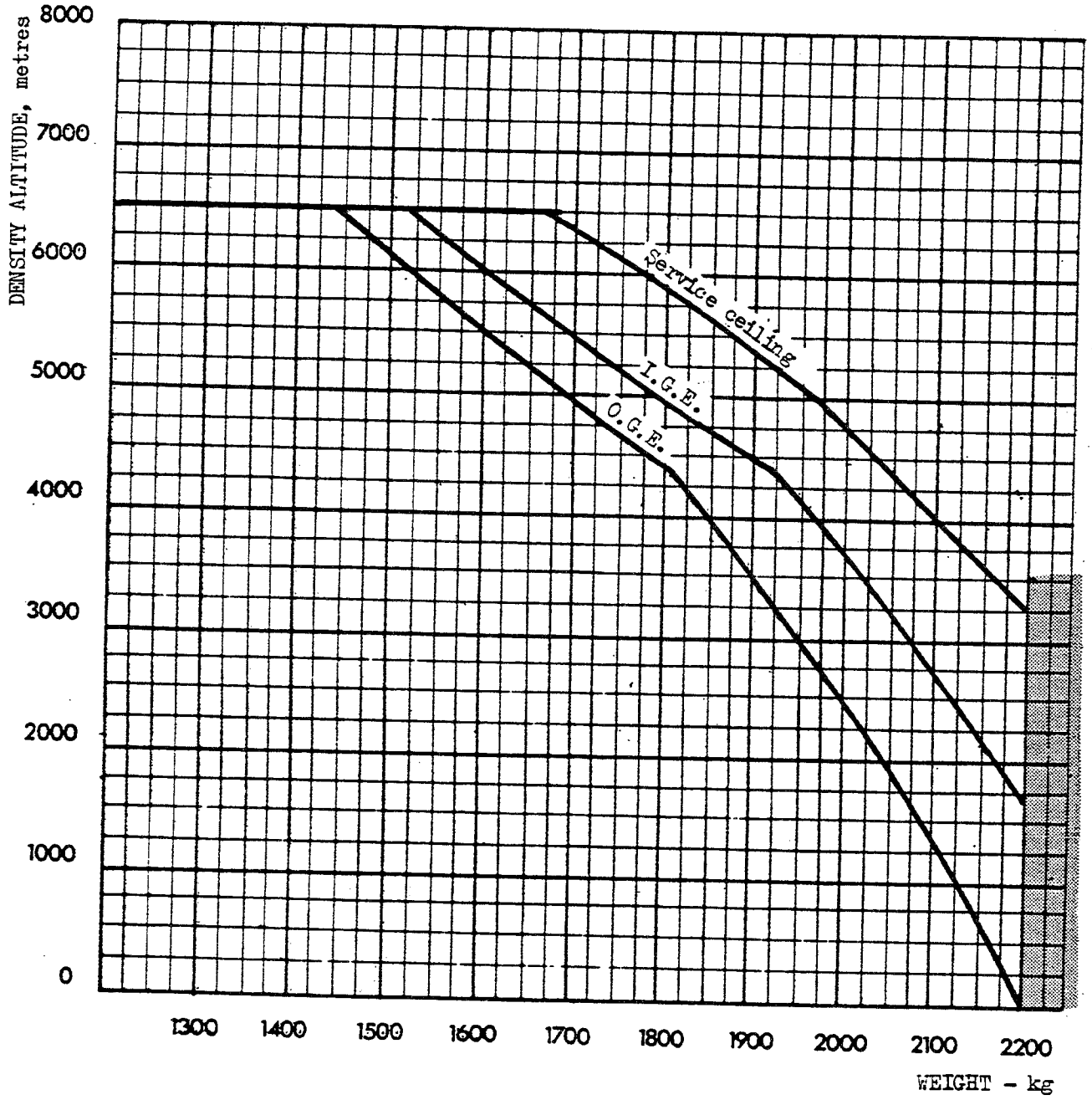


Service ceiling

Ceilings in hover I.G.E and O.G.E

Figure 3-5

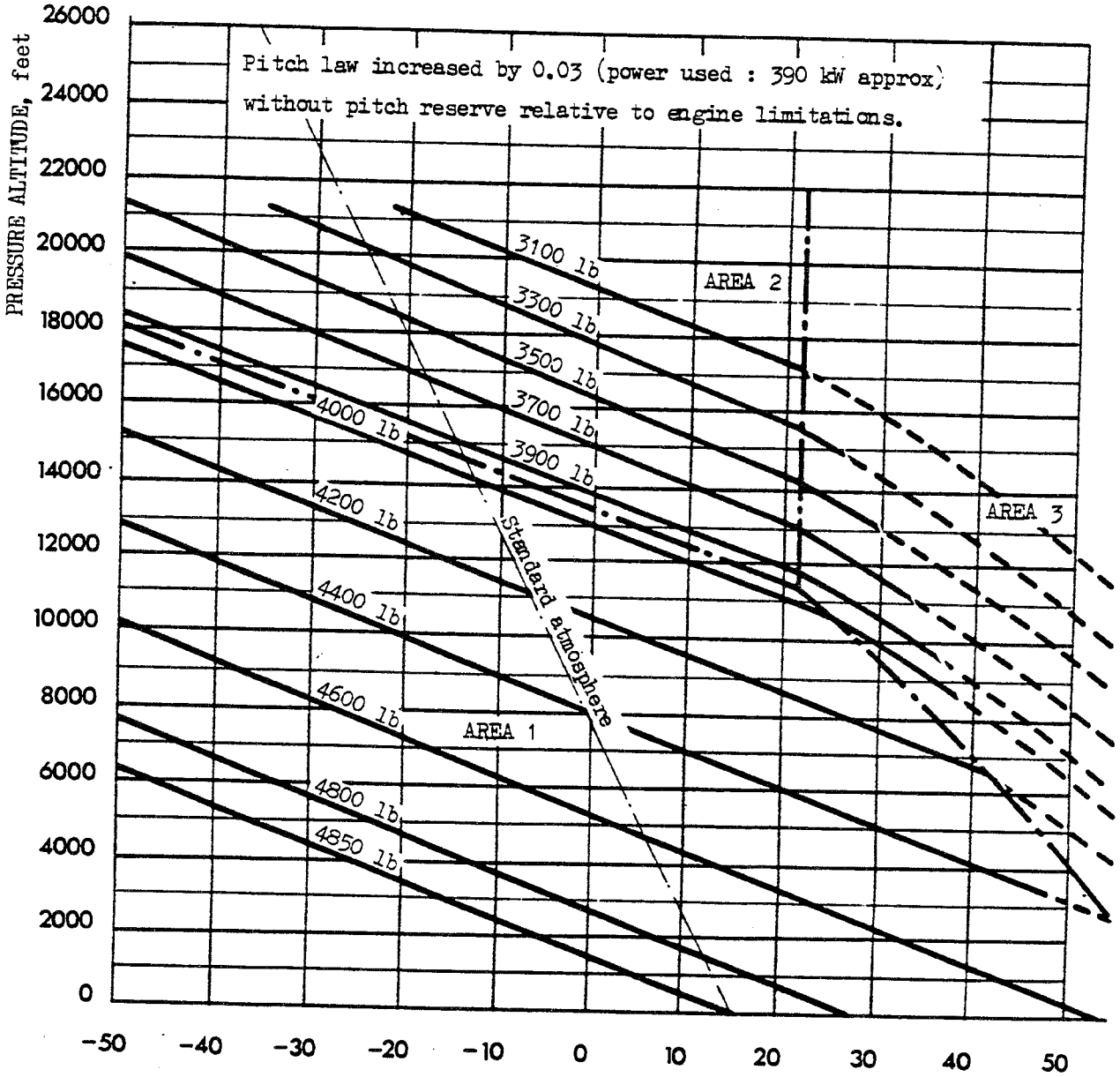
METRIC



Service ceiling - Ceilings in hover I.G.E and O.G.E

Figure 3-5

ENGLISH



AREA 1 = M.G.B. power limitation

AREA 2 = Pitch limitation : 1

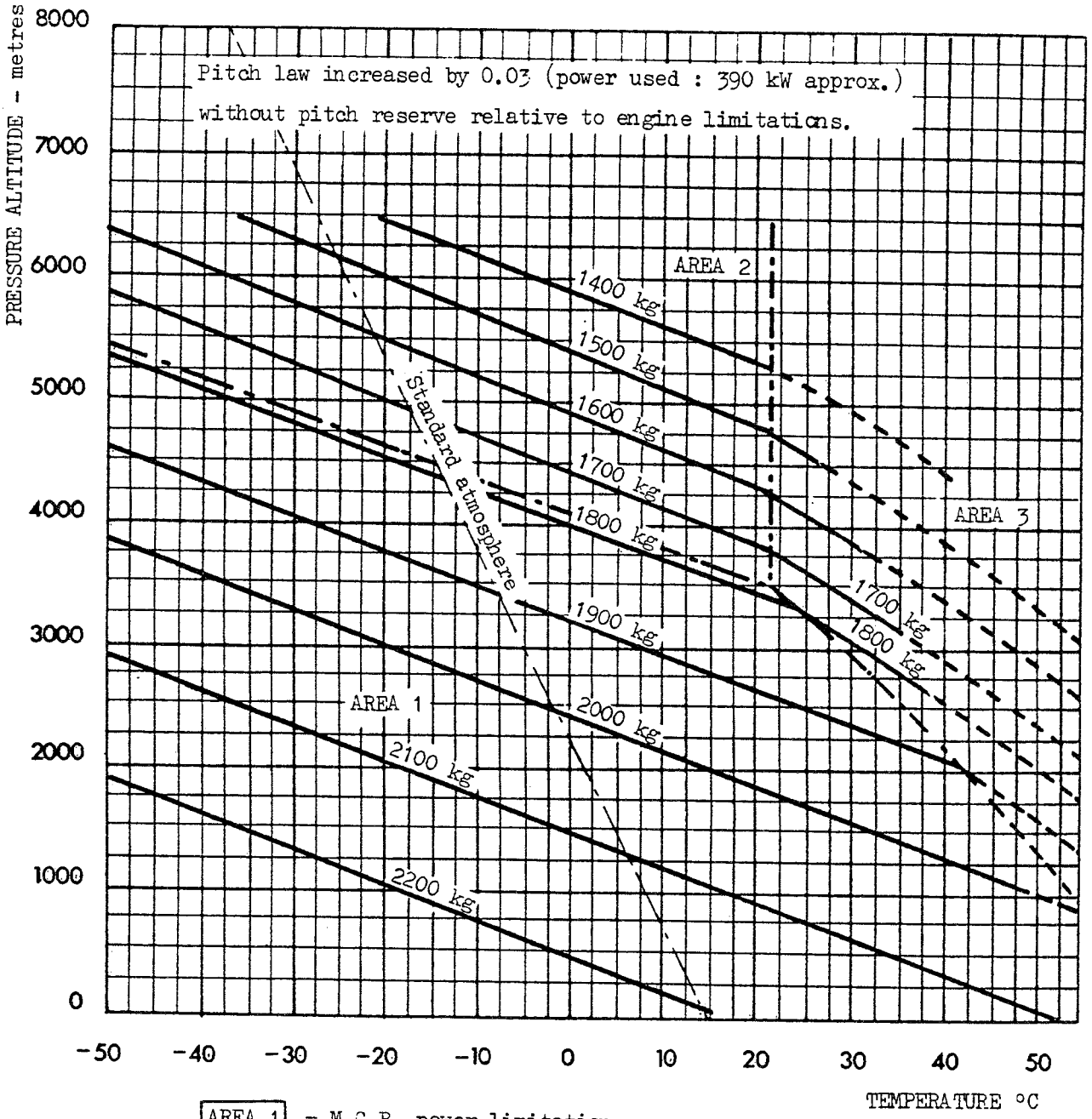
AREA 3 = Maximum thermal power

Ceiling in hover O.G.E

Figure 3-6

SGAC Approved
March 17, 1970

METRIC



AREA 1 = M.G.B. power limitation

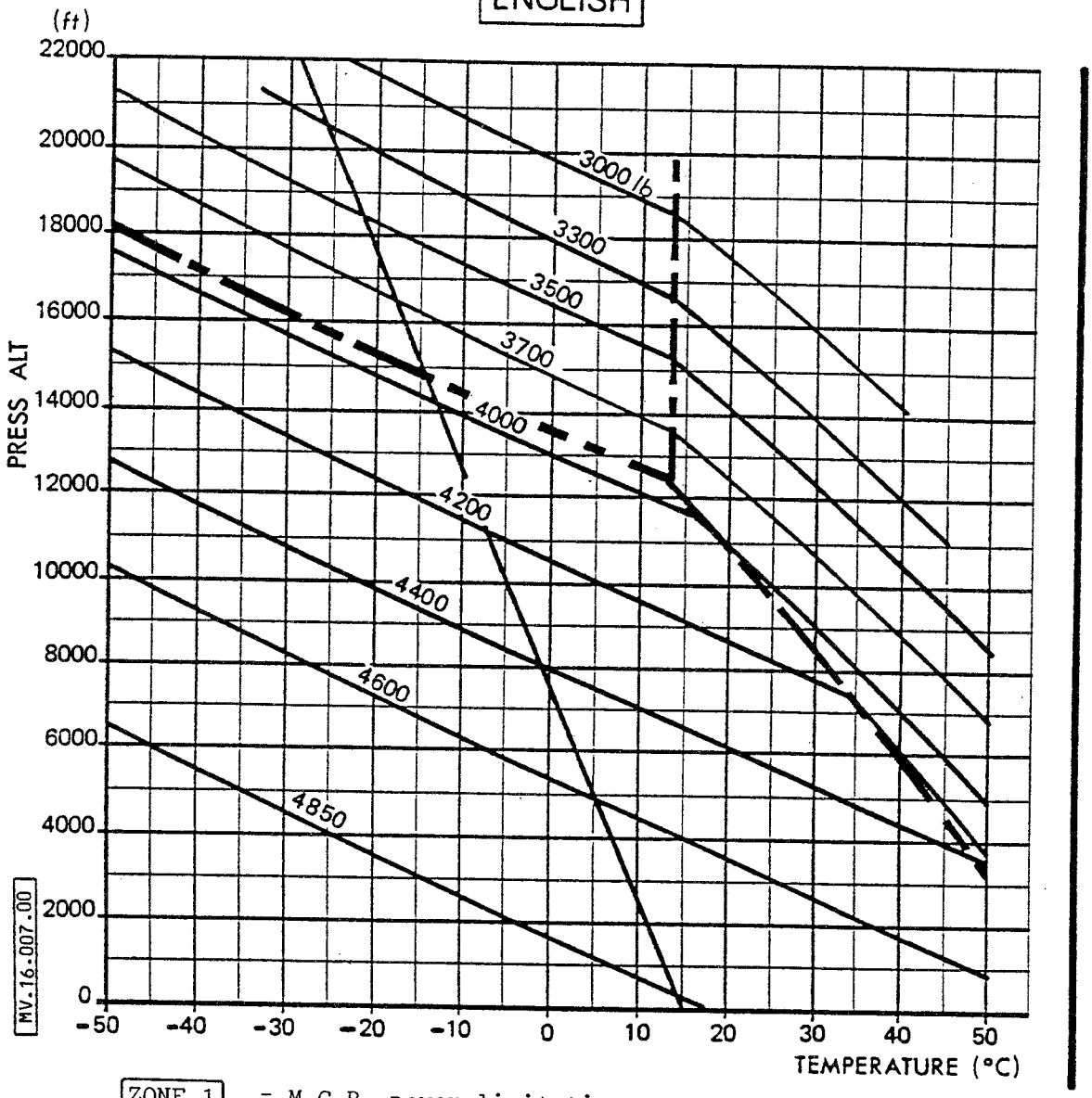
AREA 2 = Pitch limitation : 1

AREA 3 = Maximum thermal power

Ceiling in hover O.G.E

Figure 3-6

ENGLISH



ZONE 1 = M.G.B. power limitation

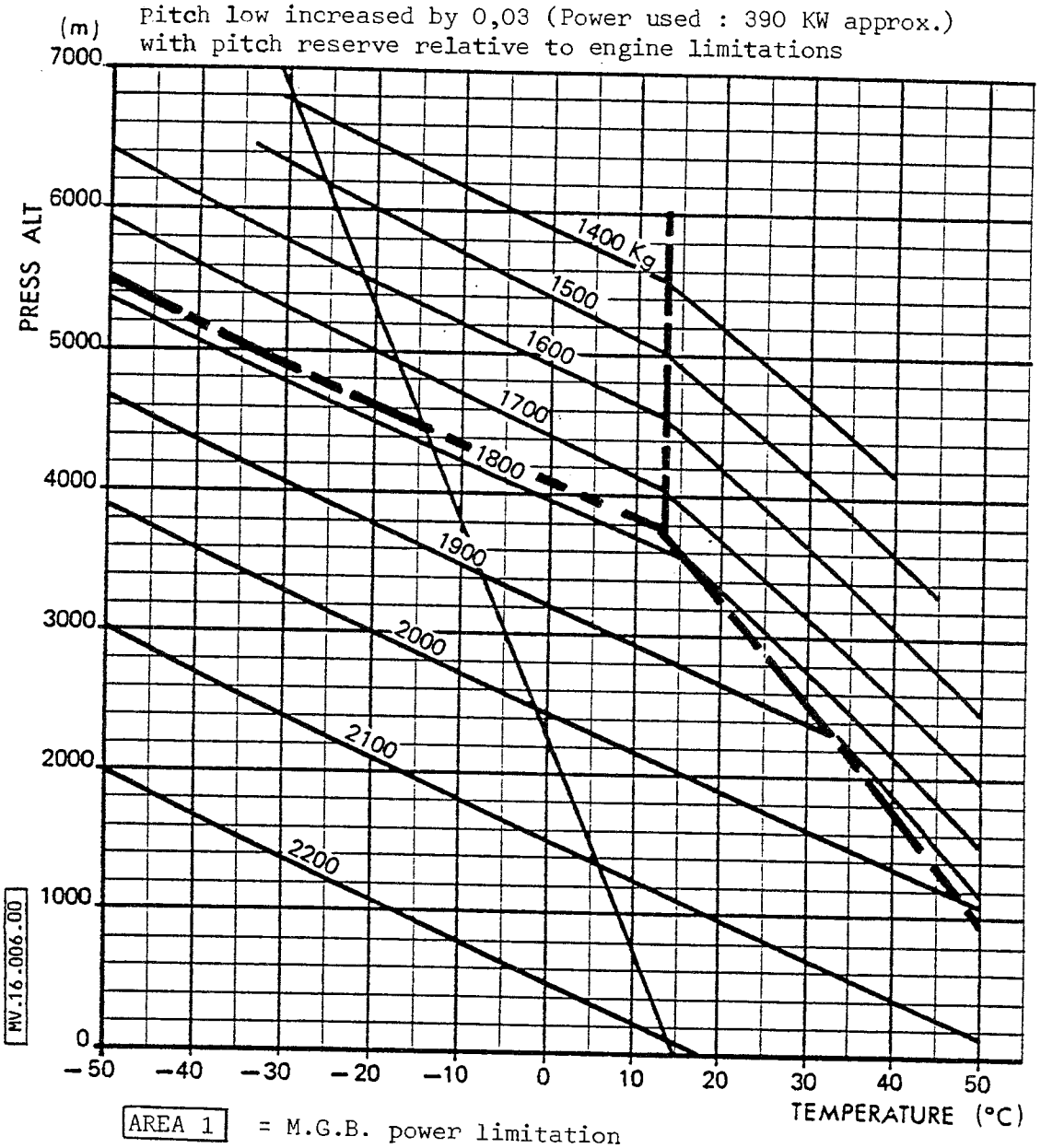
ZONE 2 = Pitch limitation : 1

ZONE 3 = Maximum thermal power

Ceiling in hover O.G.E.
with dynamic sand filters

Figure 3-6a

METRIC



AREA 1 = M.G.B. power limitation

AREA 2 = Pitch limitation : 1

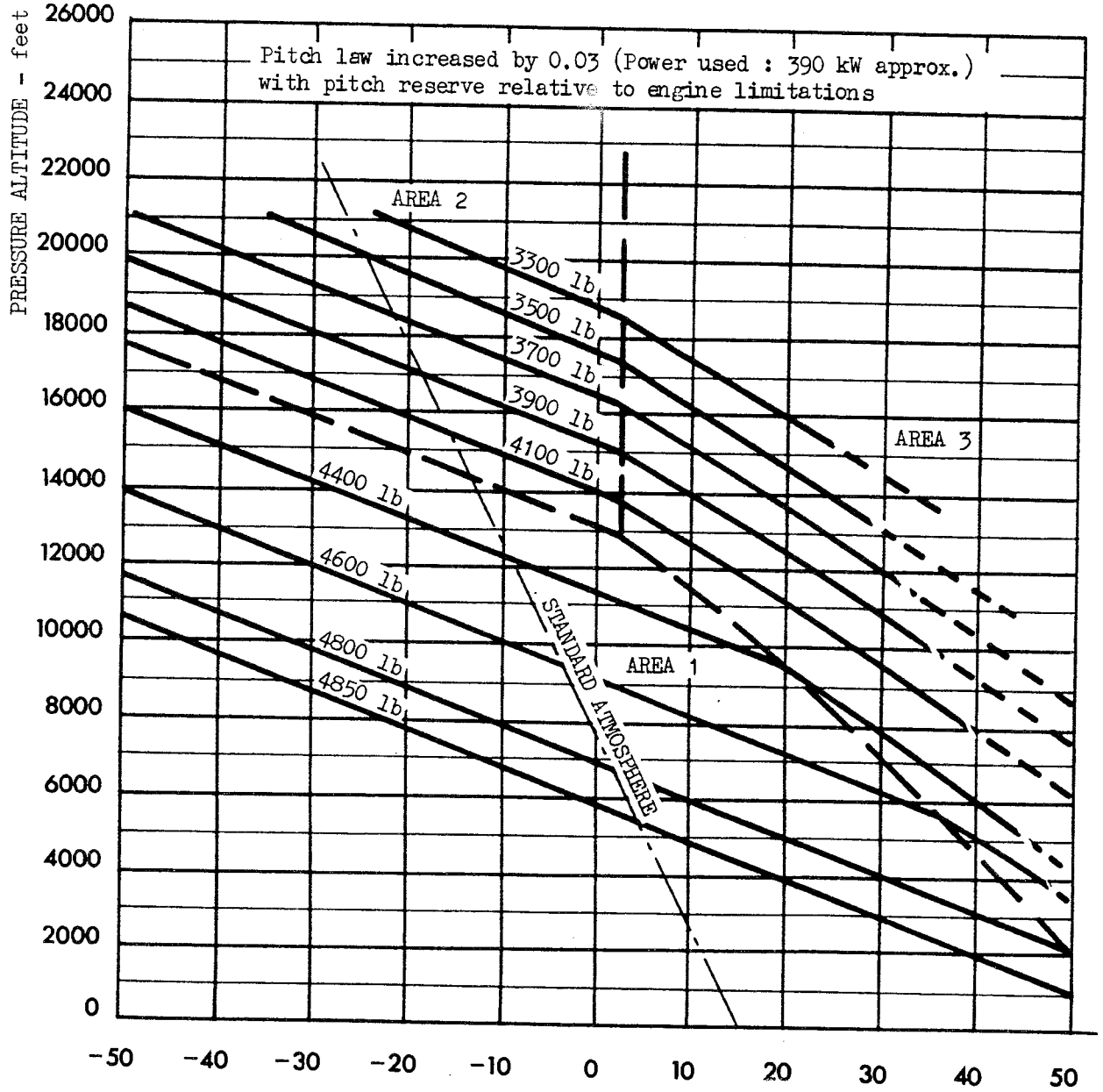
AREA 3 = Maximum thermal power

Ceiling in hover O.G.E.
with dynamic sand filters

Figure 3-6a

DGAC approved
10-81

ENGLISH



AREA 1 = M.G.B. power limitation

AREA 2 = Pitch limitation : 1

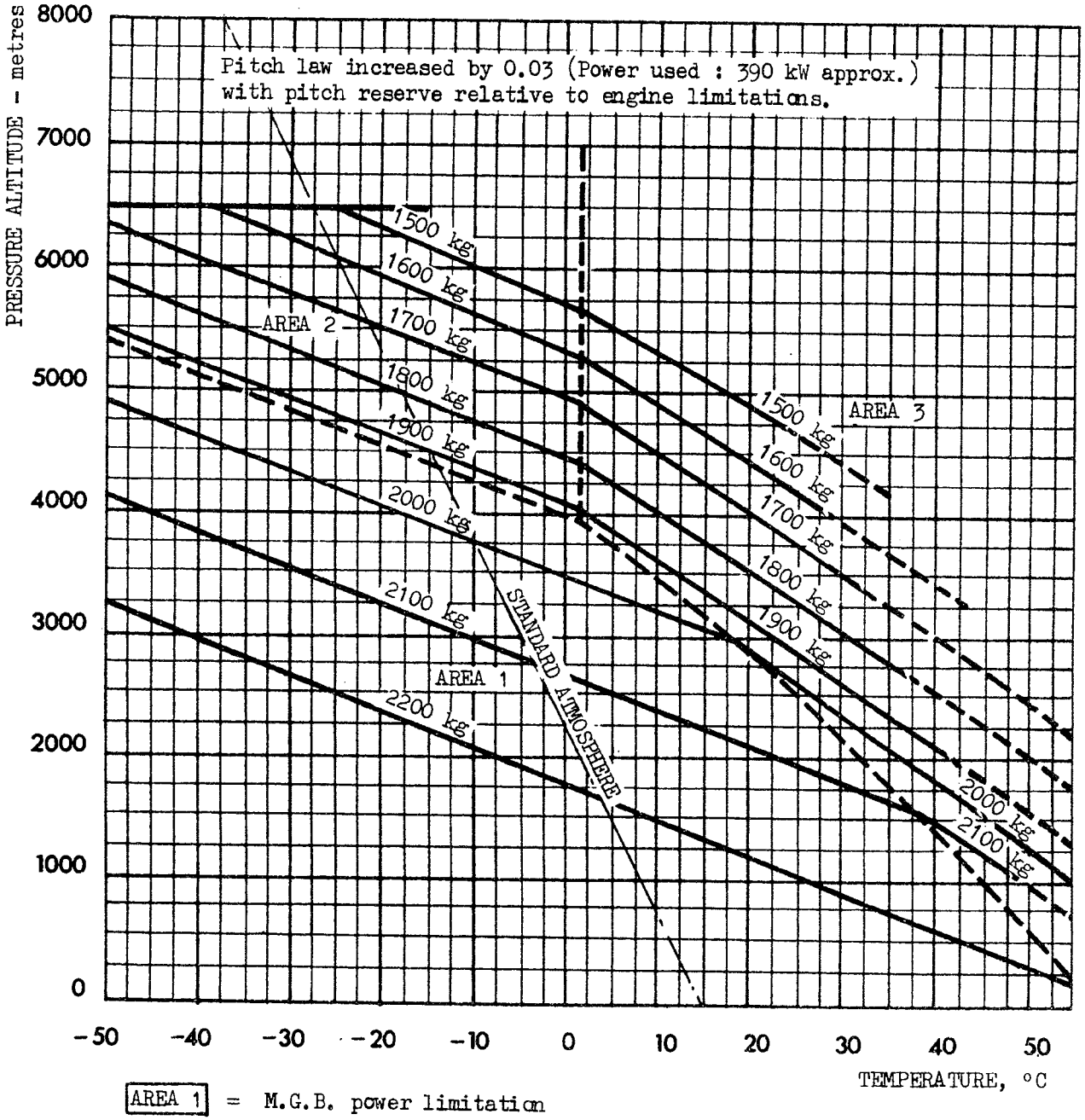
AREA 3 = Maximum thermal power

Ceiling in hover I.G.E

Figure 3-7

DGAC Approved
10-81

METRIC



AREA 1 = M.G.B. power limitation
AREA 2 = Pitch limitation : 1
AREA 3 = Maximum thermal power

Ceiling in hover I.G.E

Figure 3-7

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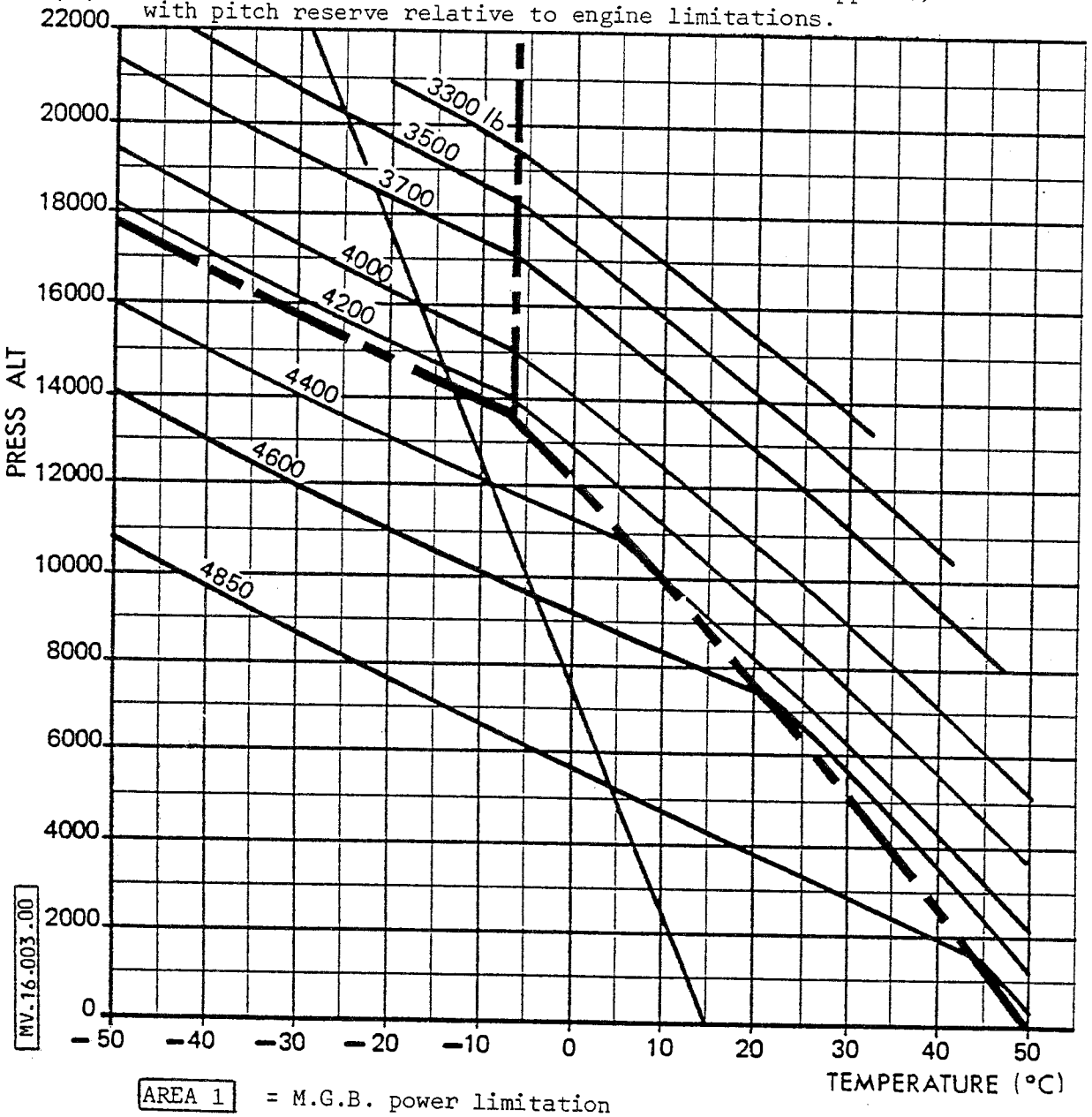
Pitch low increased by 0,03 (Power used : 390 KW approx.)
with pitch reserve relative to engine limitations.



MV.16.003.00

AREA 1 = M.G.B. power limitation

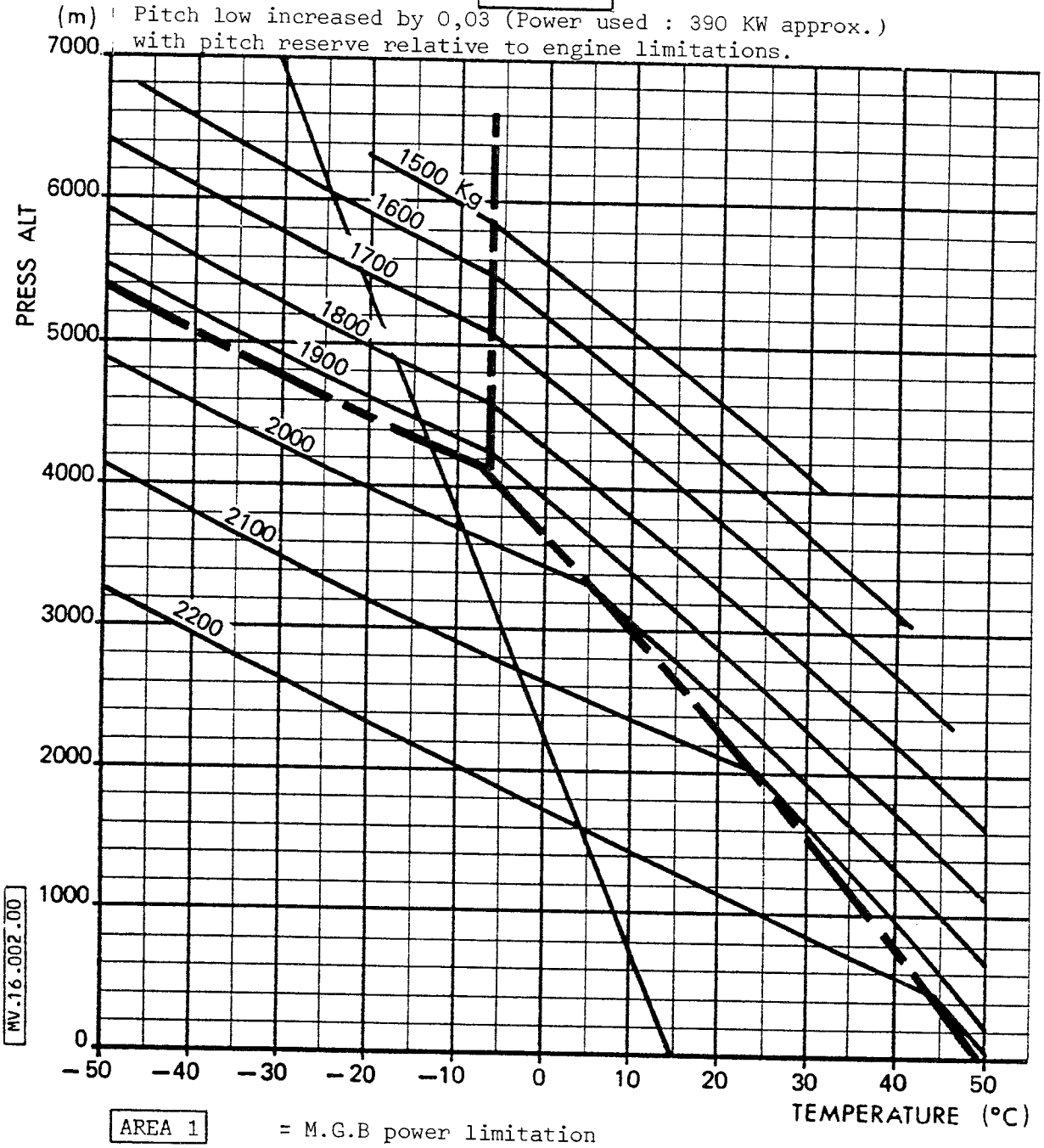
AREA 2 = Pitch limitation : 1

AREA 3 = Maximum thermal power

Ceiling in hover I.G.E.
with dynamic sand filters

Figure 3-7a

METRIC



MV.16.002.00

AREA 1 = M.G.B power limitation

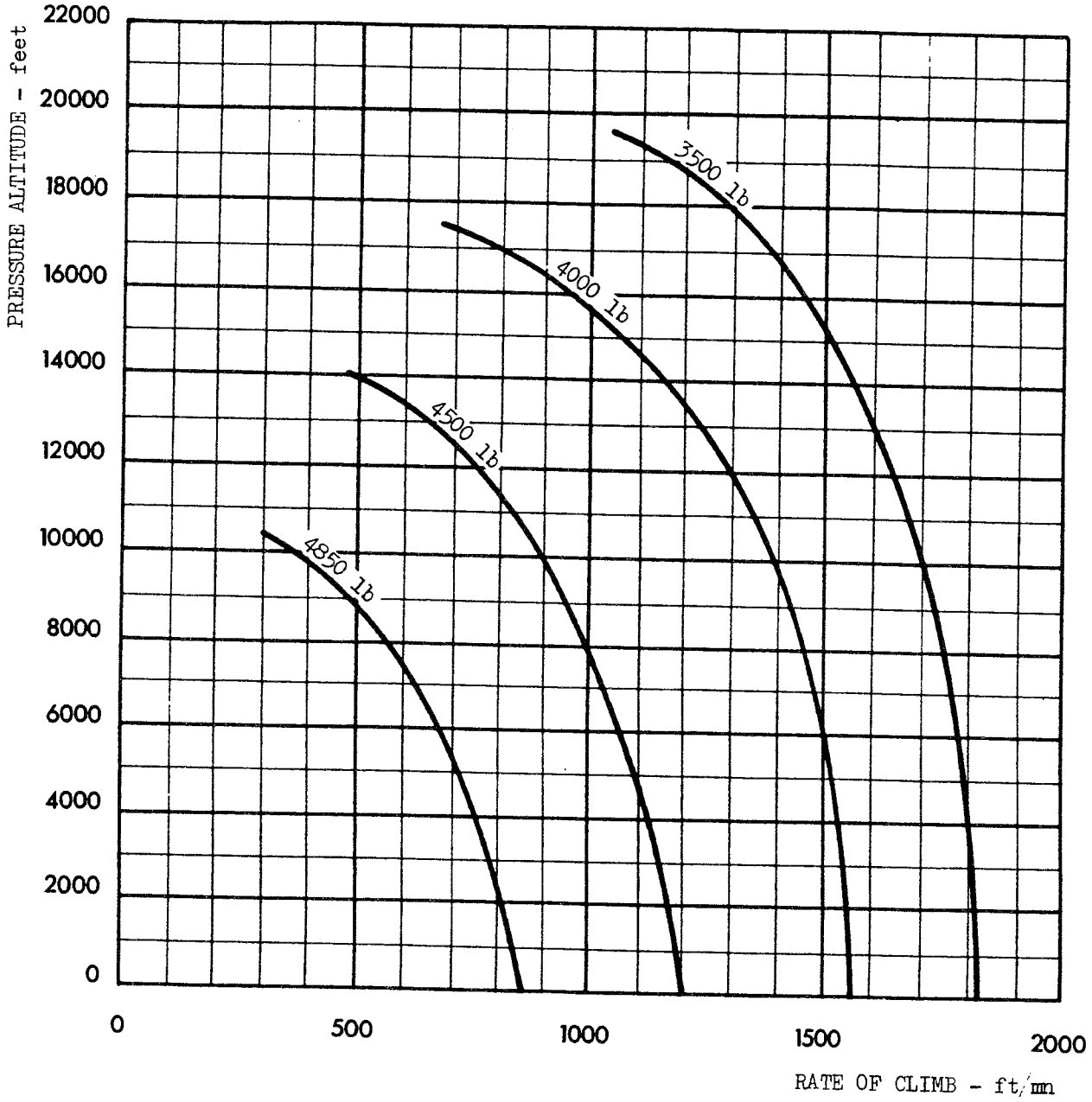
AREA 2 = Pitch limitation : 1

AREA 3 = Maximun thermal power

Ceiling in hover I.G.E.
with dynamic sand filters

Figure 3-7a

ENGLISH

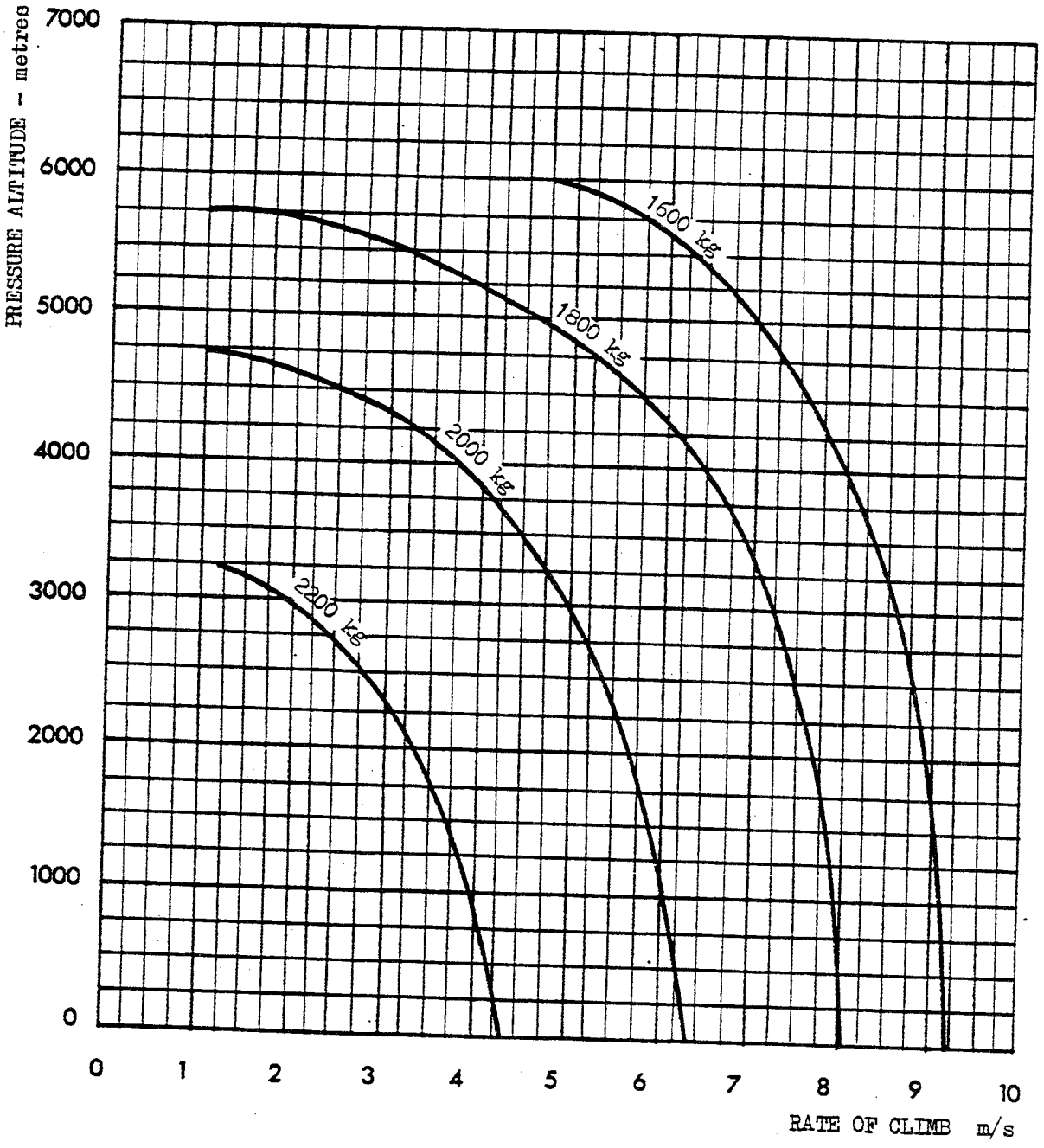


Standard atmosphere

Rate of climb

Figure 3-8

METRIC



Standard atmosphere

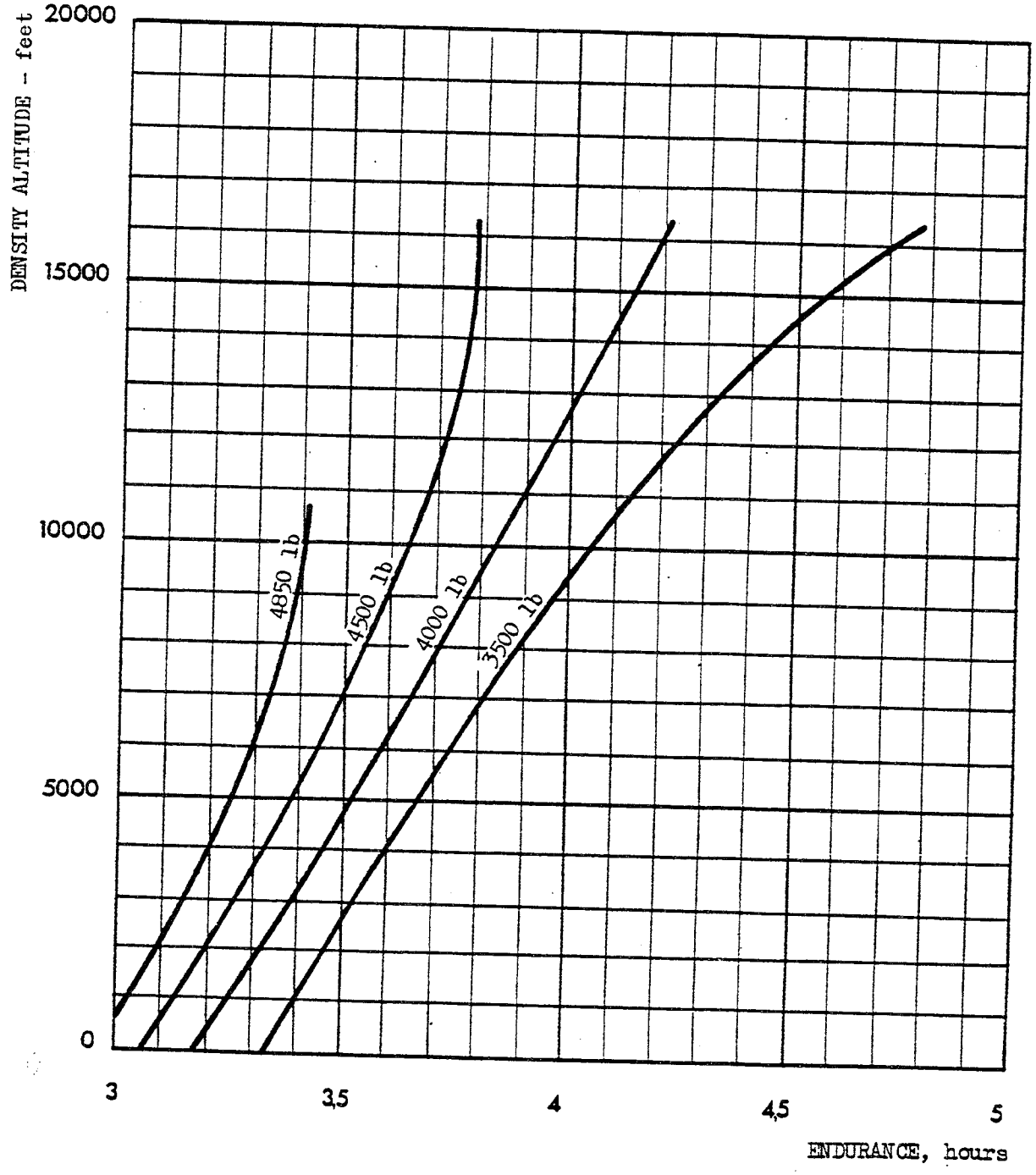
Rate of climb

I.A.S : 100 Km/h (55 Knots)

Figure 3-8

Printed in France

ENGLISH



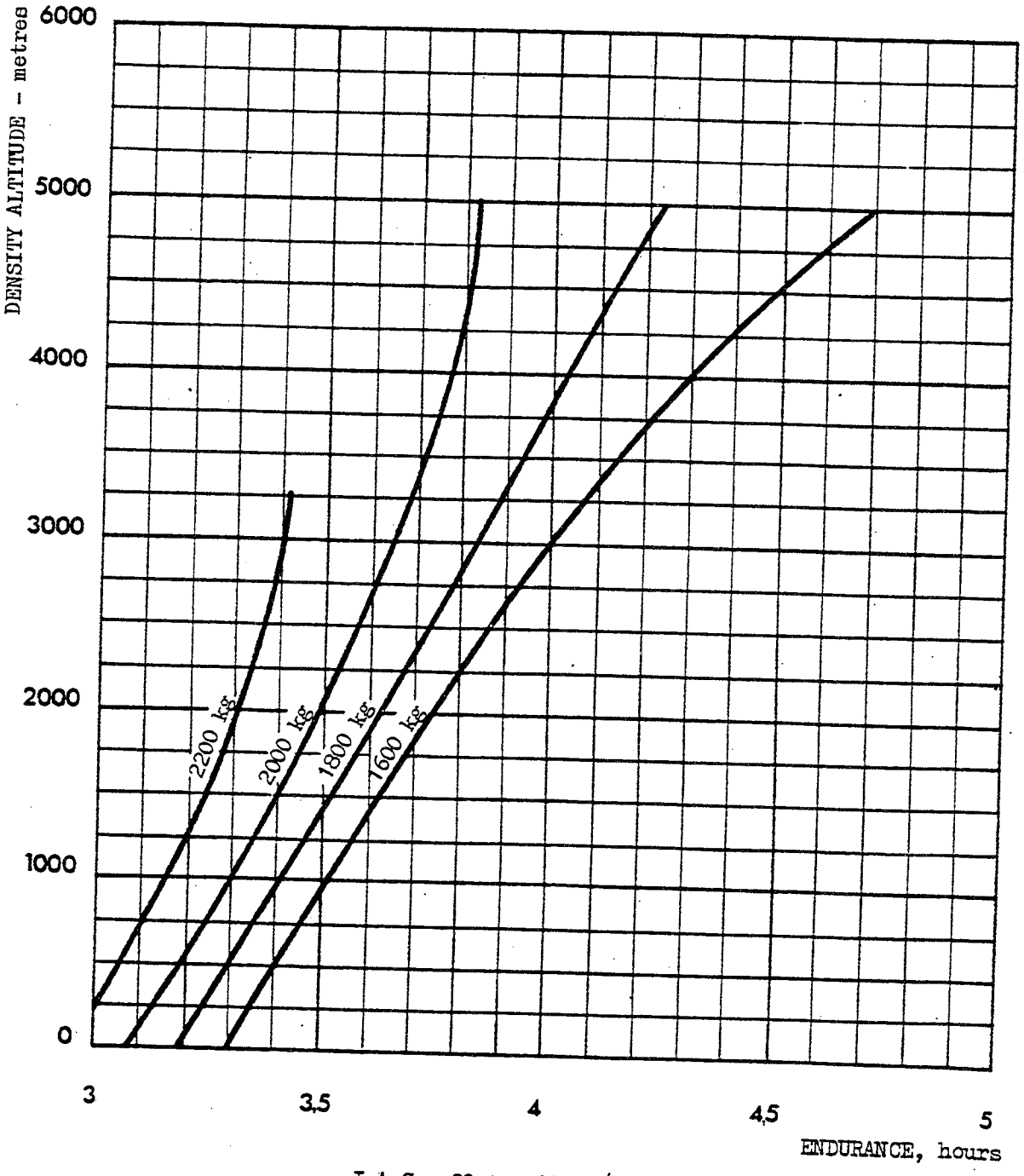
I.A.S : 45 to 55 knots

Endurance

Figure 3-9

DGAC Approved
10-81

METRIC



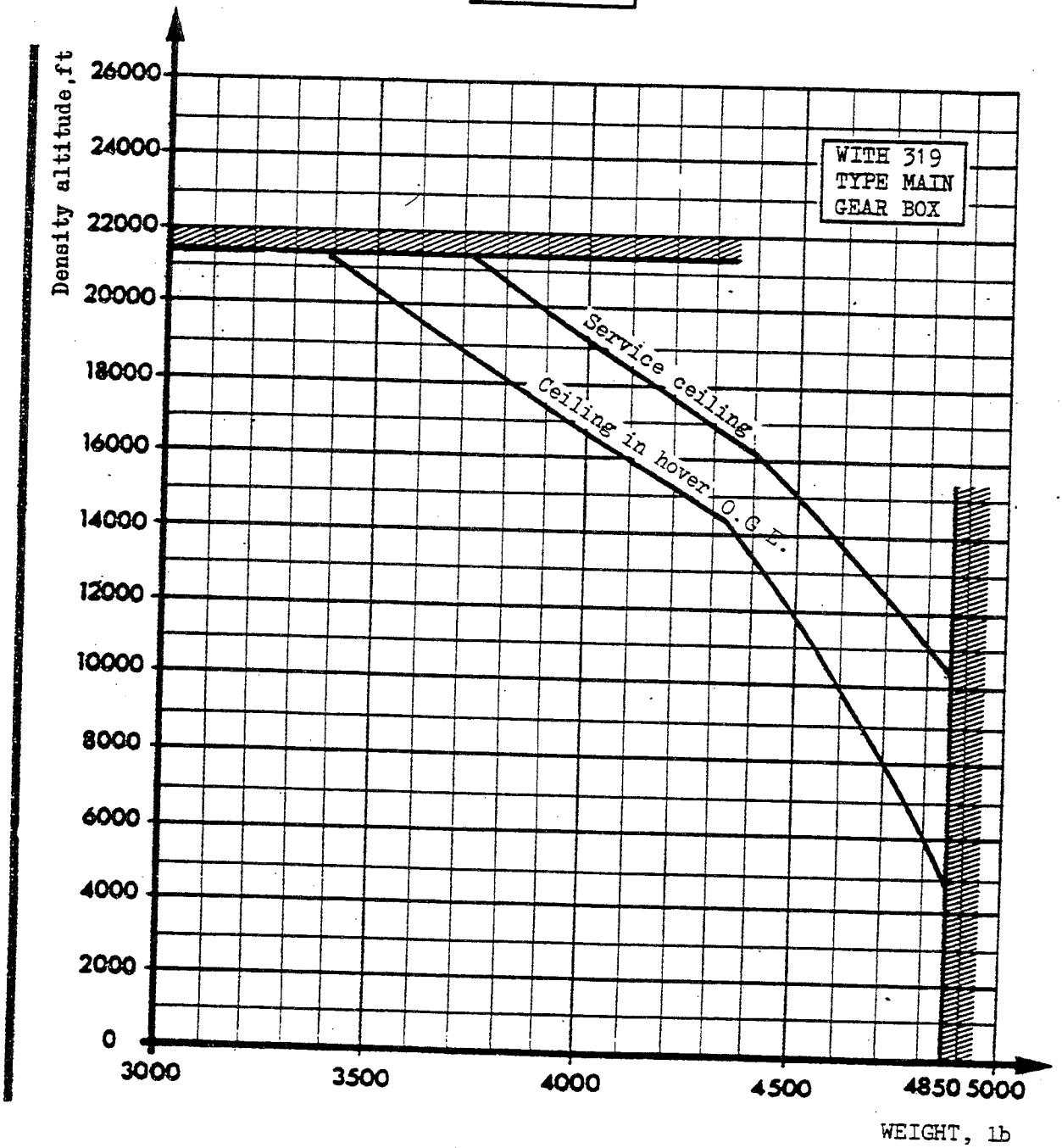
I.A.S : 80 to 100 km/h

Endurance

Figure 3-9

Printed in France

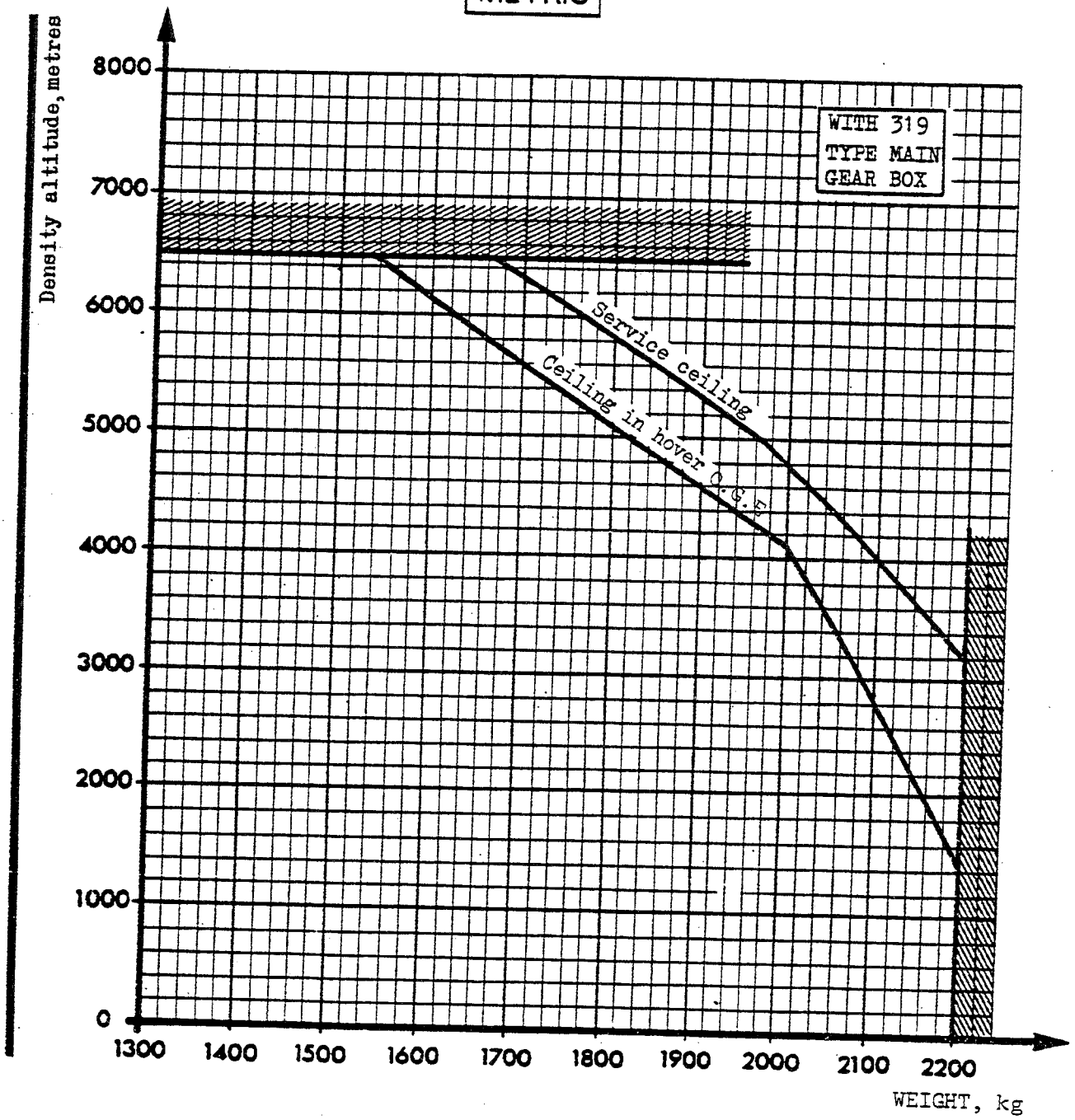
ENGLISH



Service ceiling
Ceiling in hover at recommended take-off weight with 319 type main gear box

Figure 3-10

METRIC

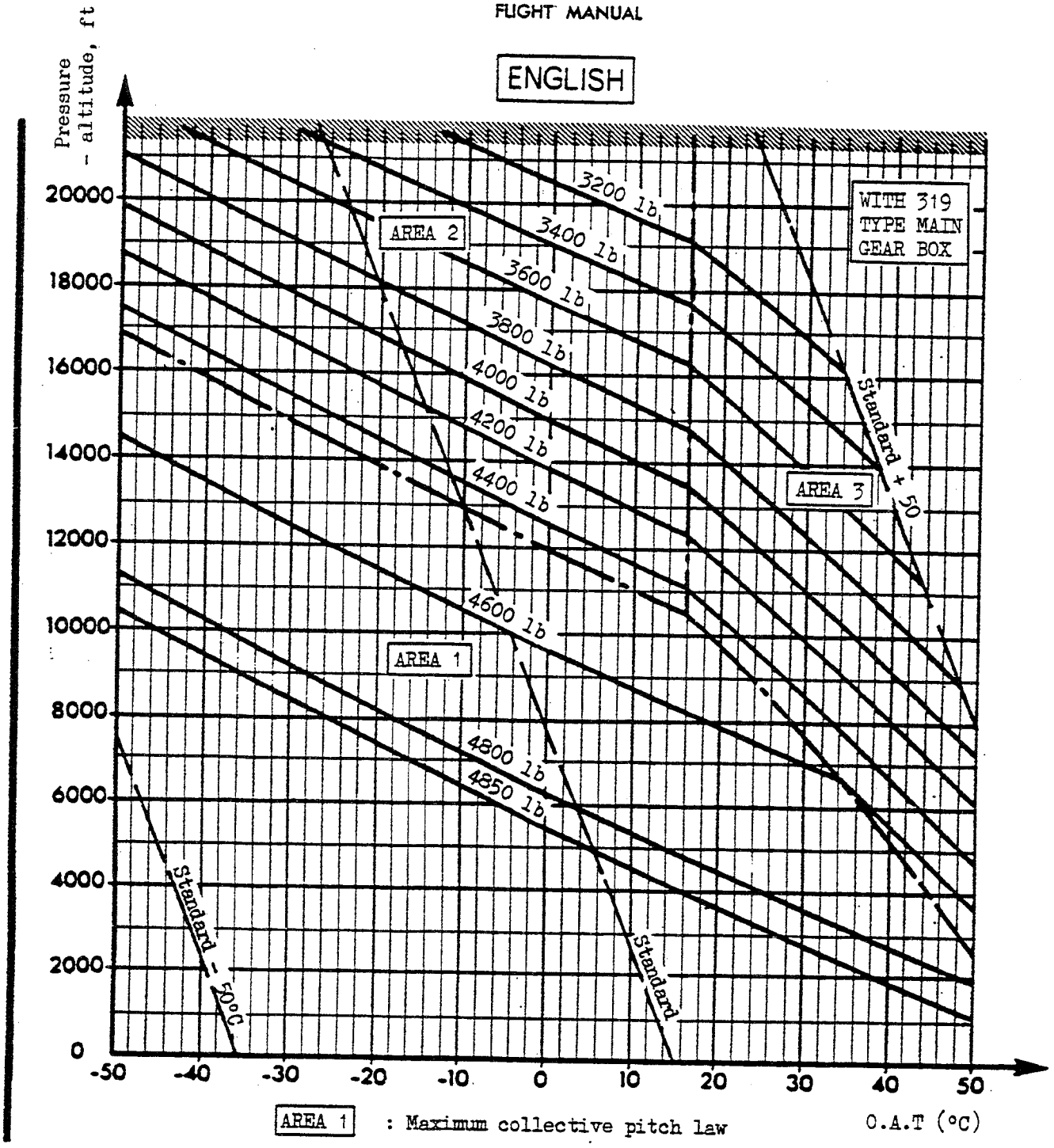


Service ceiling
Ceiling in hover at recommended take-off weight with 319 type main gear box

Figure 3-10

Printed in France

ENGLISH



AREA 1 : Maximum collective pitch law

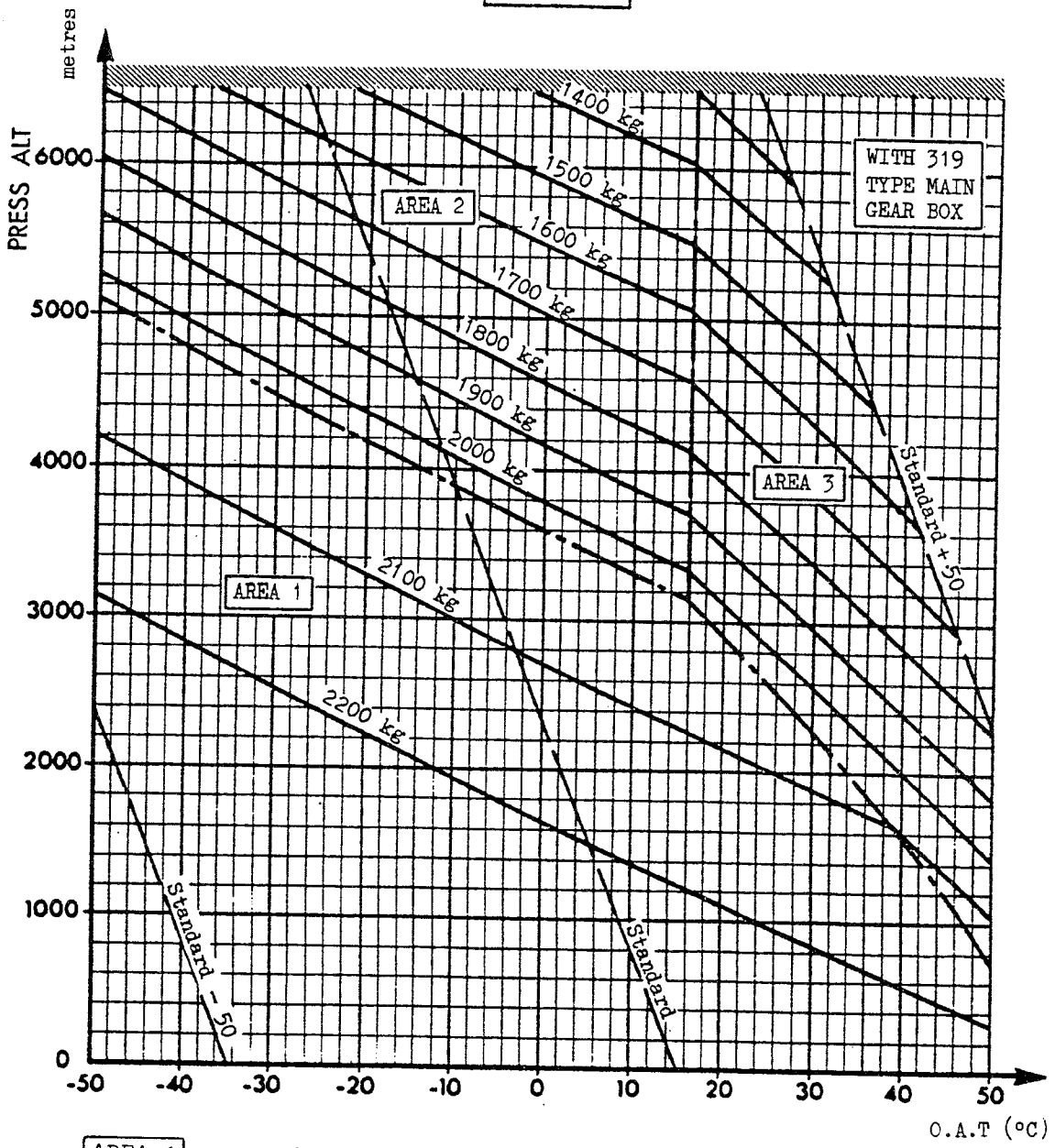
AREA 2 : pitch limitation = 1

AREA 3 : maximum thermal power

Ceiling in hover O.G.E with 319 type main gear box
Recommended take - off weights

Figure 3-11

METRIC



AREA 1 = maximum collective pitch law

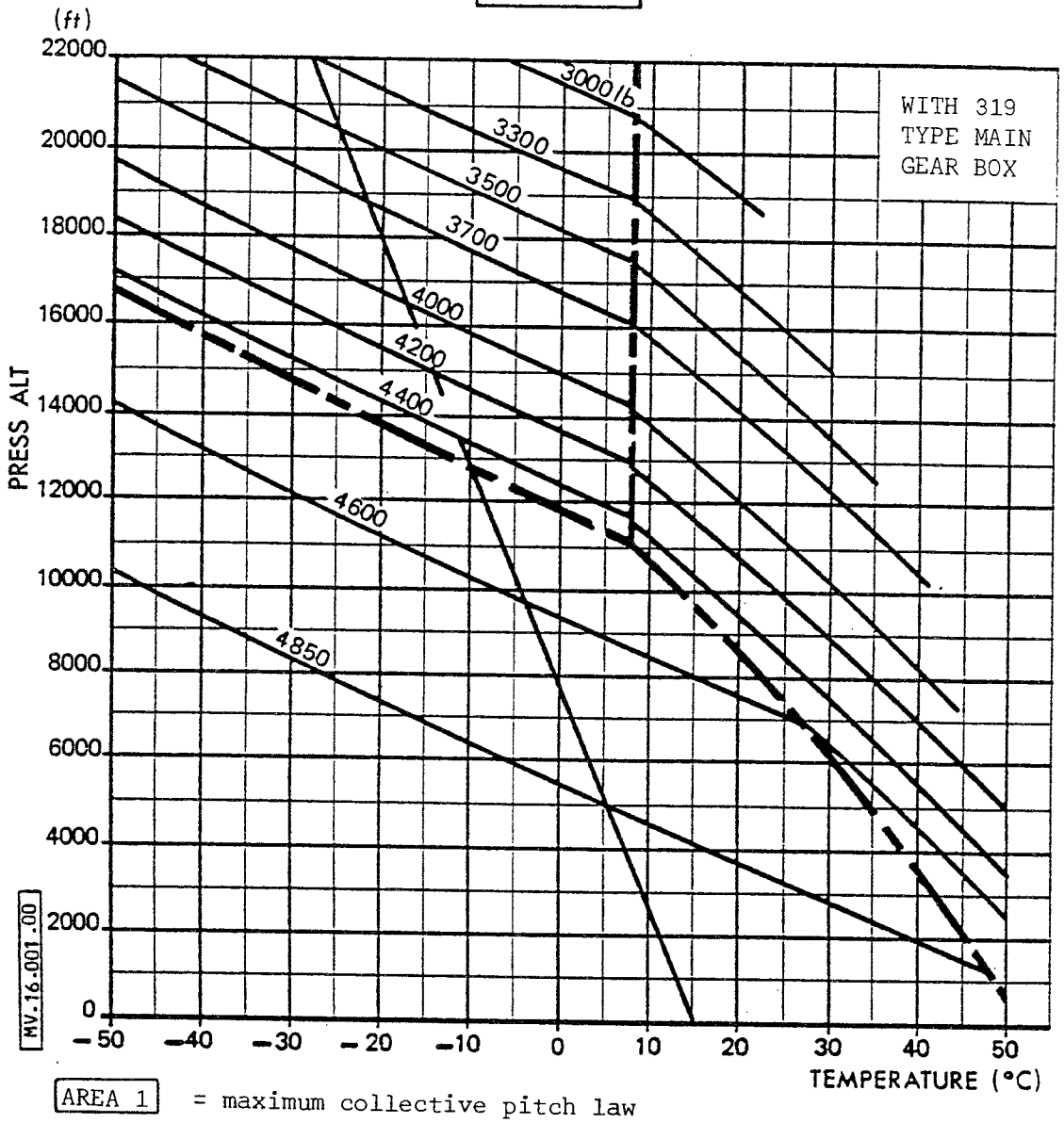
AREA 2 = pitch limitation : 1

AREA 3 = maximum thermal power

Ceiling in hover O.G.E. with 319 type main gear box. Recommended take-off weights

Figure 3-11

ENGLISH



AREA 1 = maximum collective pitch law

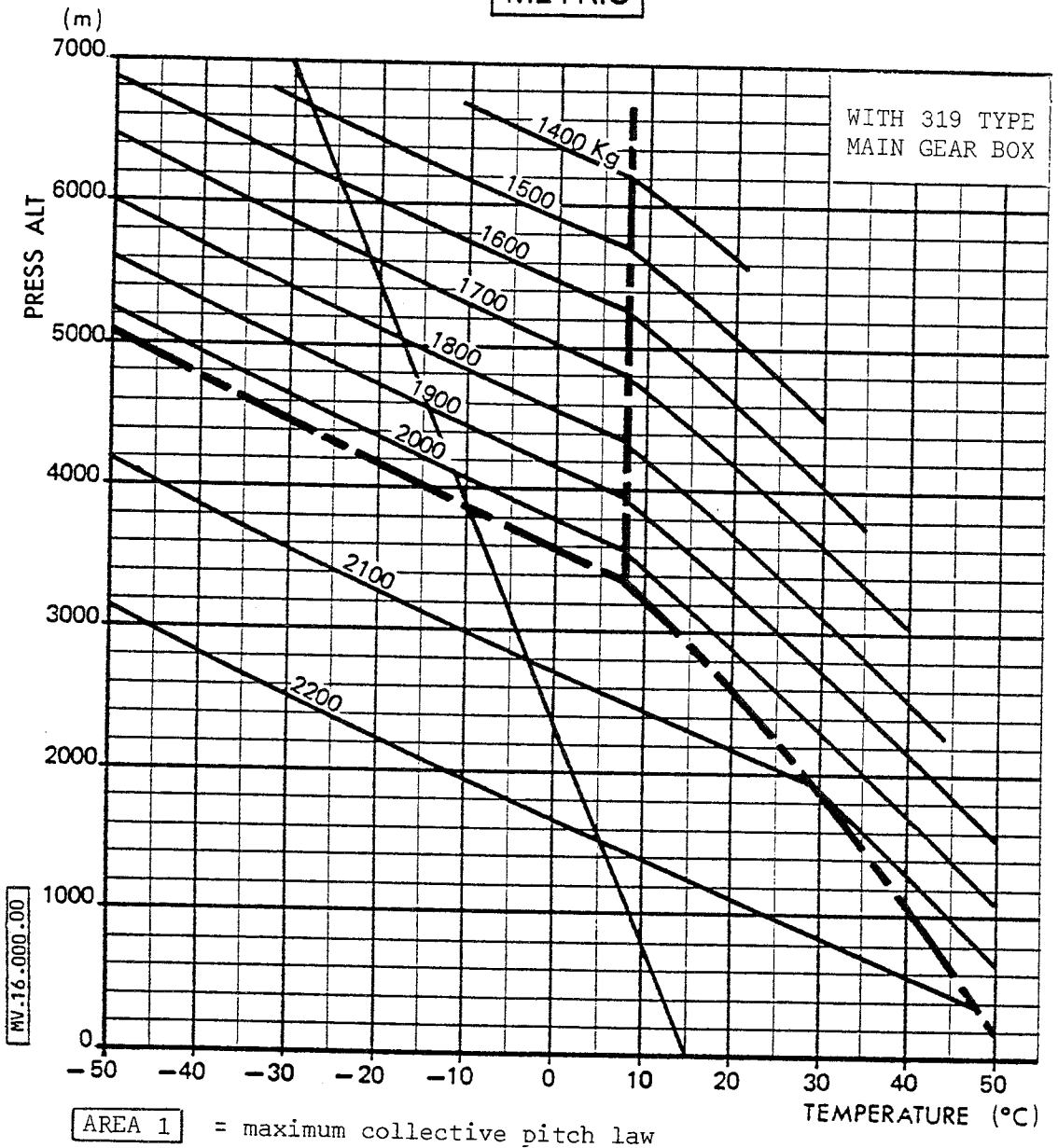
AREA 2 = pitch limitation : 1

AREA 3 = maximum thermal power

Ceiling in hover O.G.E. with 319 type main gear box. Recommended take-off weights for a/c fitted with dynamic sand filters

Figure 3-11a

METRIC



AREA 1 = maximum collective pitch law

AREA 2 = pitch limitation : 1

AREA 3 = maximum thermal power

Ceiling in hover O.G.E. with 319 type main gear box. Recommended take-off weights for a/c fitted with dynamic sand filters

Figure 3-11a

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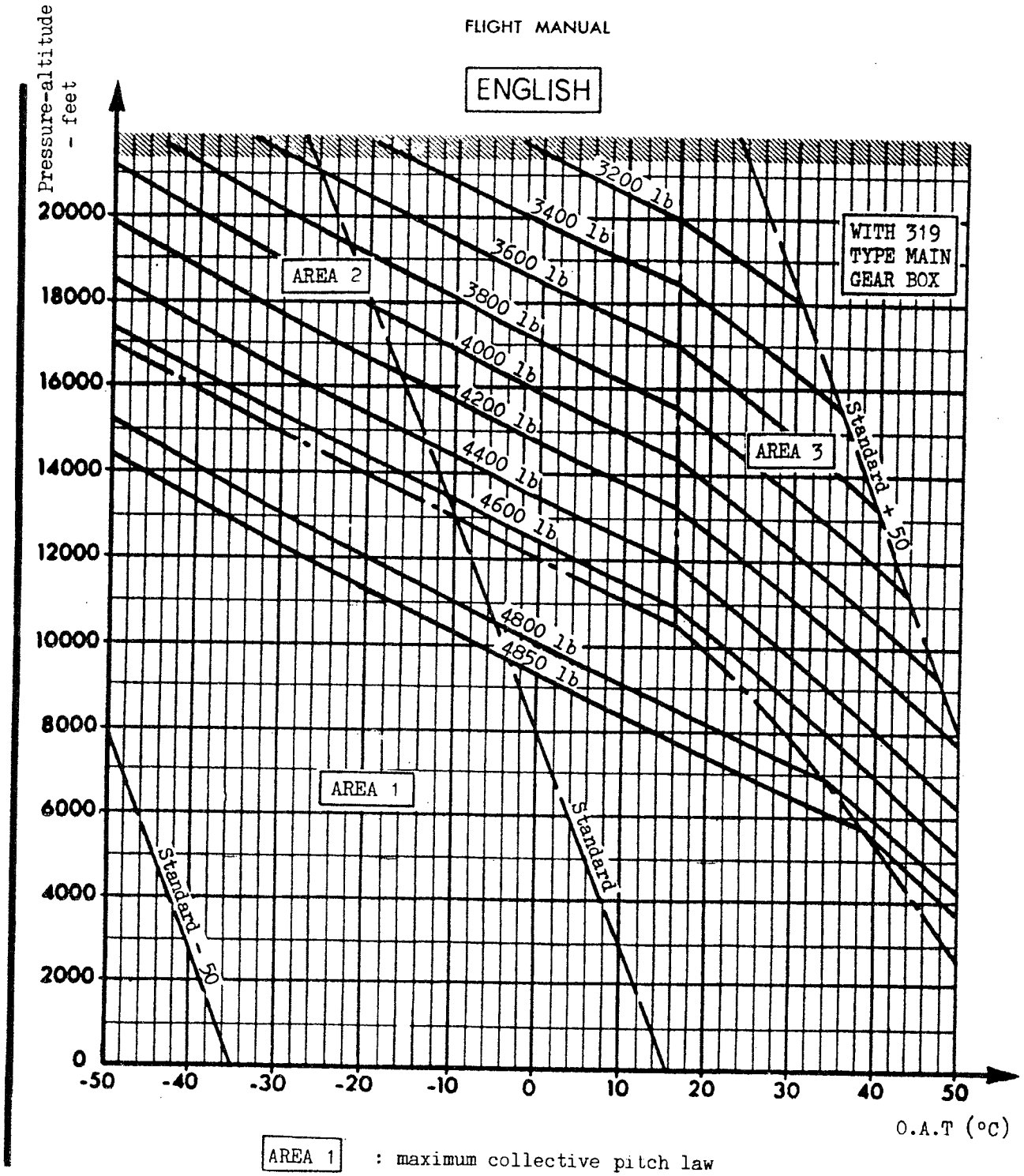

AREA 1 : maximum collective pitch law

AREA 2 : pitch limitation = 1

AREA 3 : maximum thermal power

Ceiling in hover I.G.E with 319 type main gear box

Figure 3-12

DGAC Approved
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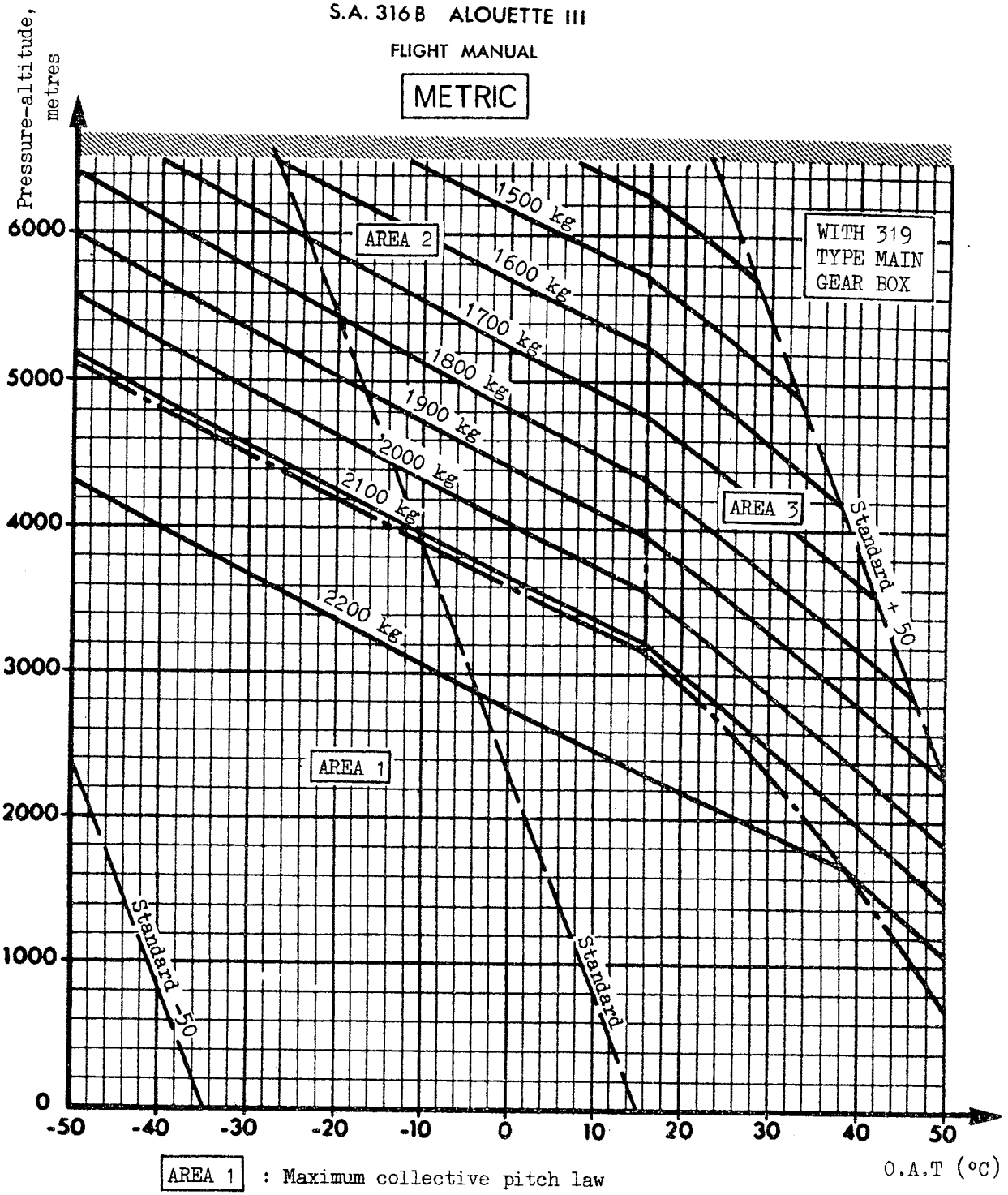
METRIC



AREA 1 : Maximum collective pitch law

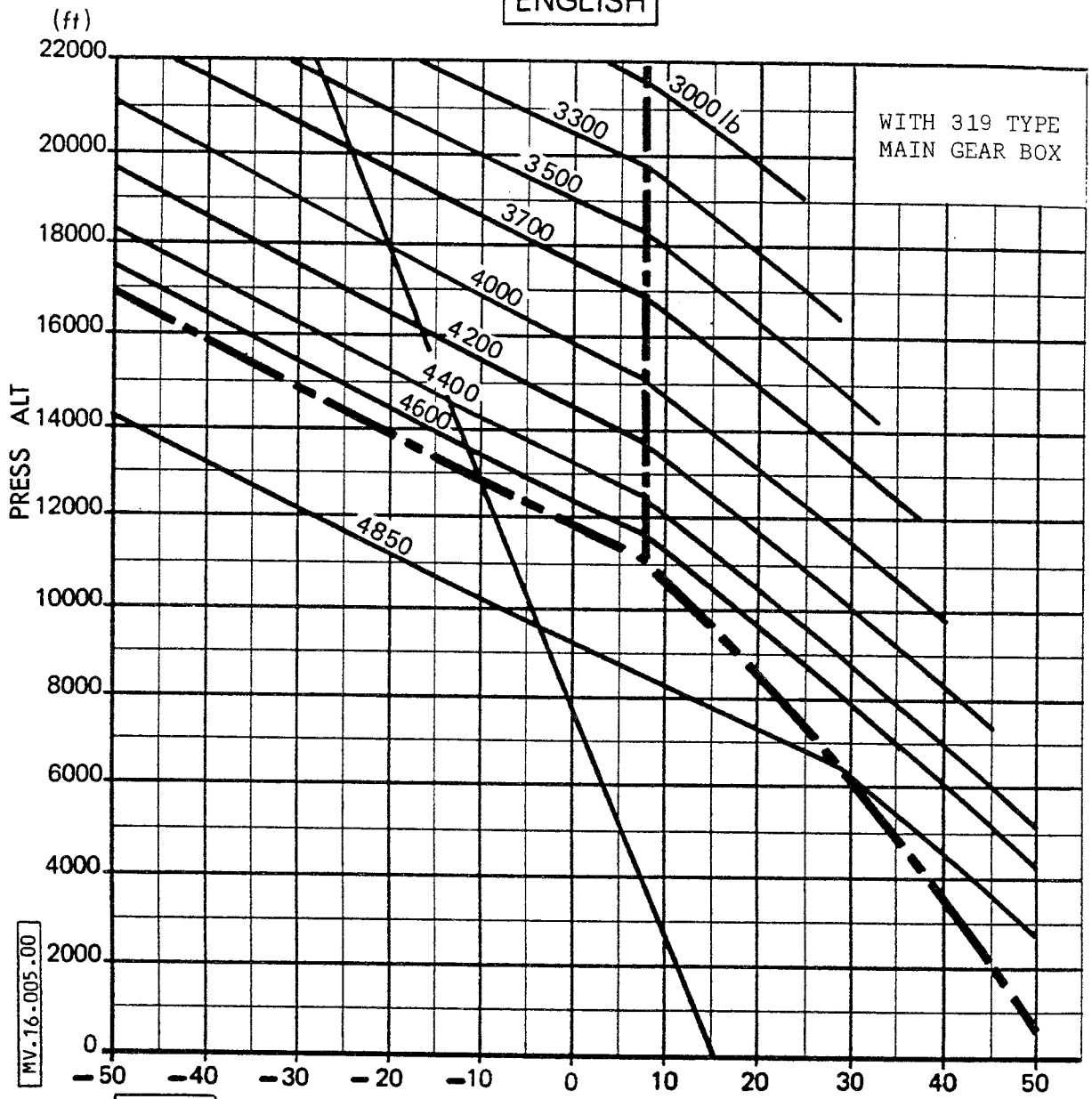
AREA 2 : Maximum pitch = 1

AREA 3 : Maximum thermal power

Ceiling in hover I.G.E with 319 type main gear box

Figure 3-12

ENGLISH



AREA 1 = Maximum collective pitch law

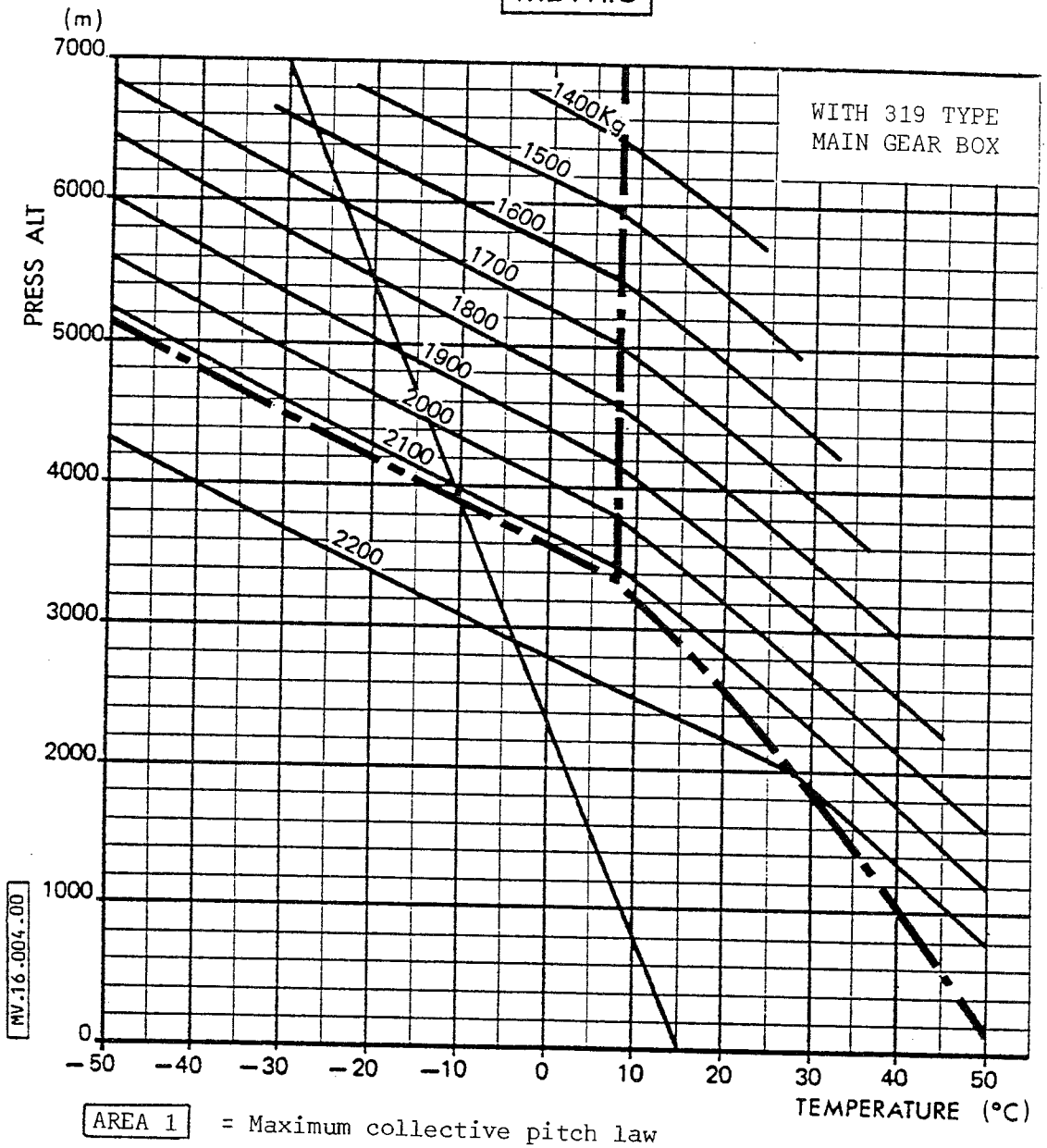
AREA 2 = Maximum pitch : 1

AREA 3 = Maximum thermal power

Ceiling in hover I.G.E. with 319 type main gear box and dynamic sand filters

Figure 3-12a

METRIC



AREA 1 = Maximum collective pitch law

AREA 2 = Maximum pitch : 1

AREA 3 = Maximum thermal power

Ceiling in hover I.G.E. with 319 type main gear box and dynamic sand filters

Figure 3-12a

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