

TABLE OF CONTENTS

SECTION 1: GENERAL	4
SECTION 2: LIMITATIONS	6
SECTION 3: EMERGENCY PROCEDURES.....	8
SECTION 4: NORMAL PROCEDURES	9
SECTION 5: PERFORMANCE.....	10
SECTION 6: WEIGHT AND BALANCE	13
SECTION 7: SERVICING REQUIREMENTS	15

SECTION 1: GENERAL

DESCRIPTIVE DATA

ENGINE

Engine Model Number: O-360-A2F, A3A, A4A, A4M, and A4N
Engine Type: Normally aspirated, direct drive, air cooled, horizontally opposed, carburetor equipped, four cylinder engine with 360 cu. in. displacement.
Horsepower Rating and Engine Speed 180 rated BHP at 2700RPM.
Maximum Continuous RPM: 2700 RPM

NOTE

Static RPM Limits: 2250 to 2450 RPM

PROPELLERS:

Sensenich Propellers approved on installations using the O-360-A4 series engines only

Propeller Manufacturer: Sensenich Corporation

Propeller Model Number: 76EM8S14-0-60

Number of Blades: 2.

Propeller Diameter: Maximum.....76 inches.
Minimum:.....76 inches.

Pitch Range: 62" to 56 "

Propeller Manufacturer: Sensenich Corporation.

Propeller Model Number: 76EM8S-0-60 (when using MKA3.5 prop spacer).

Number of Blades: 2.

Propeller Diameter: Maximum.....76 inches.
Minimum:76 inches.

Pitch Range: 62" to 56"

Approved on all approved engine installations:

Propeller Manufacturer: McCauley Accessory Division.

Propeller Model Number: 1A170/CFA
1A170E/CFA

Number of Blades: 2.

Propeller Diameter: Maximum:.....76 inches.

Minimum:74.5 inches.

Propeller Type: Fixed Pitch

Pitch Range: 60" to 56"

Approved on installations using the O-360-A4A, -A4M, -A4N, and A3A engines only:

Propeller Manufacturer: McCauley Accessory Division.

Propeller Model Number: 1A170/JFA

Number of Blades: 2.

Propeller Diameter: Maximum:.....76 inches.

Minimum:74.5 inches.

Propeller Type: Fixed Pitch

Pitch Range: 60" to 56"

MAXIMUM CERTIFICATED WEIGHTS

Takeoff,	Normal	2550 lbs.
	Utility	2000 lbs.
Landing,	Normal	2550 lbs.
	Utility	2000 lbs.

SECTION 2: LIMITATIONS

AIRSPEED INDICATOR MARKINGS

Air Plains Services PN: 172861 or 172861-2 or existing airspeed indicator, marked as follows:

MARKING	MPH CAS VALUE OR RANGE
White Arc	56-100 mph
Green Arc	64-145 mph
Yellow Arc.....	145-182 mph
Red Line	182 mph

AIRSPEED LIMITATIONS

VA	Maneuvering Speed:	
	2550 Pounds.....	112 MPH CAS

POWER PLANT LIMITATIONS

Engine Model Number: O-360-A2F, A3A, A4A, A4M and A4N
Maximum Power: 180 BHP rating
Maximum Continuous RPM: 2700 RPM

WEIGHT LIMITS

Maximum Takeoff Weight,	
Normal	2550 lbs.
Utility	2000 lbs.
Maximum Landing Weight,	
Normal	2550 lbs.
Utility	2000 lbs.

FLAP TRAVEL - Limited to 30°

CENTER OF GRAVITY LIMITS - NORMAL CATEGORY

Center of Gravity Range:

Forward: 35 inches aft of datum at 1950 lbs. or less, with straight line variation to 41.0 inches aft of datum at 2550 lbs.

Aft: 47.3 inches aft of datum at all weights.

UTILITY CATEGORY

Center of Gravity:

Forward: 35 inches aft of datum at 1950 lbs. or less, with straight line variation to 35.5 inches aft of datum at 2000 lbs.

Aft: 40.5 inches aft of datum at all weights.

FLIGHT LOAD FACTORS

NORMAL CATEGORY

Flight Load Factors (Maximum Takeoff Weight – 2550 lbs.):

Flaps Up..... +3.8g, -1.52g

Flaps Down +3.5g

SECTION 3: EMERGENCY PROCEDURES

AIRSPEEDS FOR EMERGENCY OPERATIONS

Engine Failure After Takeoff:

Wing Flaps Up..... 79-88 MPH IAS

Wing Flaps Down..... 71-83 MPH IAS

Maneuvering Speed:

2550 lbs..... 112 MPH IAS

2150 lbs..... 109 MPH IAS

1750 lbs..... 98 MPH IAS

Maximum Glide:

2550 lbs..... 78 MPH IAS

Precautionary Landing With Engine Power..... 75 MPH IAS

Landing Without Engine Power:

Wing Flaps Up..... 79-88 MPH IAS

Wing Flaps Down..... 71-83 MPH IAS

DITCHING

If no power is available, approach at 76 MPH IAS with flaps at 30°.

FLIGHT IN ICING CONDITIONS

Approach at 92 to 104 MPH IAS, depending on the accumulation.

SECTION 4: NORMAL PROCEDURES

NORMAL PROCEDURES

SPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight of 2550 pounds and may be used for any lesser weight.

Takeoff:

Normal Climb Out..... 86-98 MPH IAS
Short Field Takeoff, Flaps 10°, Speed at 50 ft..... 66 MPH IAS

Enroute Climb, Flaps Up:

Normal Sea Level..... 86-98 MPH IAS
Normal, 10,000 Feet 81-92 MPH IAS
Best Rate of Climb, Sea Level 84 MPH IAS
Best Rate of Climb, 10,000 Feet 86 MPH IAS
Best Angle of Climb, Sea level 71 MPH IAS

Landing Approach:

Normal Approach, Flaps Up 75-86 MPH IAS
Normal Approach, Flaps 30° 69-81 MPH IAS

Balked Landing:

Maximum Power, Flaps 20° 69 MPH IAS

Maximum Recommended - Turbulent Air penetration Speed:

2550 lbs..... 112 MPH IAS
2150 lbs..... 109 MPH IAS
1750 lbs..... 98 MPH IAS

SECTION 5: PERFORMANCE

LANDING DISTANCE - SHORT FIELD

CONDITIONS
Flaps Down 30°

If a landing with flaps up is necessary, increase approach speed by 10 mph IAS and allow for 35% longer distance.

			0°C		10°C		20°C		30°C		40°C	
WEIGHT LBS	SPEED AT 50 FT IAS	PRESS ALT FT.	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS.	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
2550	71	S.L.	545	1290	565	1320	585	1350	605	1380	625	1415
		1000	565	1320	585	1350	605	1385	625	1420	650	1450
		2000	585	1355	610	1385	630	1420	650	1455	670	1490
		3000	610	1385	630	1425	655	1460	675	1495	695	1530
		4000	630	1425	655	1460	675	1495	700	1535	725	1570
		5000	655	1460	680	1500	705	1535	725	1575	750	1615
		6000	680	1500	705	1540	730	1580	755	1620	780	1660
		7000	705	1545	730	1585	760	1625	785	1665	810	1705
		8000	735	1585	760	1630	790	1670	815	1715	840	1755

CRUISE FUEL CONSUMPTION

(Not FAA Approved)

Conditions:

2550 Pounds

Recommended Lean Mixture

		20°C Below Standard Temp.		Standard Temperature		20°C Above Standard Temp.	
Press. Alt Feet	RPM	% BHP	GPH	% BHP	GPH	% BHP	GPH
2000	2550	—	—	76	10.2	72	9.6
	2500	77	10.3	72	9.6	68	9.1
	2400	69	9.2	64	8.7	61	8.3
	2300	61	8.3	58	7.9	55	7.6
	2200	55	7.5	52	7.2	49	6.9
	2100	49	6.8	46	6.6	43	6.3
4000	2600	—	—	76	10.2	72	9.6
	2500	73	9.7	68	9.2	65	8.7
	2400	65	8.8	62	8.3	58	8.0
	2300	58	8.0	55	7.6	52	7.3
	2200	52	7.3	49	6.9	47	6.6
	2100	46	6.6	44	6.3	41	6.1
6000	2650	—	—	76	10.1	72	9.6
	2600	77	10.3	72	9.6	68	9.1
	2500	69	9.3	65	8.8	62	8.4
	2400	62	8.4	59	8.0	56	7.6
	2300	56	7.7	53	7.3	50	7.0
	2200	50	7.0	47	6.7	44	6.4
8000	2700	—	—	76	10.1	71	9.5
	2600	73	9.8	69	9.2	65	8.7
	2500	66	8.8	62	8.4	59	8.0
	2400	59	8.1	56	7.7	53	7.3
	2300	53	7.4	50	7.0	47	6.7
	2200	47	6.7	45	6.4	42	6.1
10,000	2700	77	10.2	72	9.6	68	9.1
	2600	69	9.3	65	8.8	62	8.4
	2500	63	8.5	59	8.1	56	7.7
	2400	57	7.8	53	7.4	50	7.0
	2300	51	7.1	48	6.8	45	6.5
12,000	2700	69	9.3	65	8.8	62	8.4
	2600	66	8.9	62	8.4	59	8.0
	2500	60	8.2	56	7.7	53	7.4
	2400	54	7.5	51	7.1	48	6.7
	2300	48	6.8	45	6.5	42	6.2

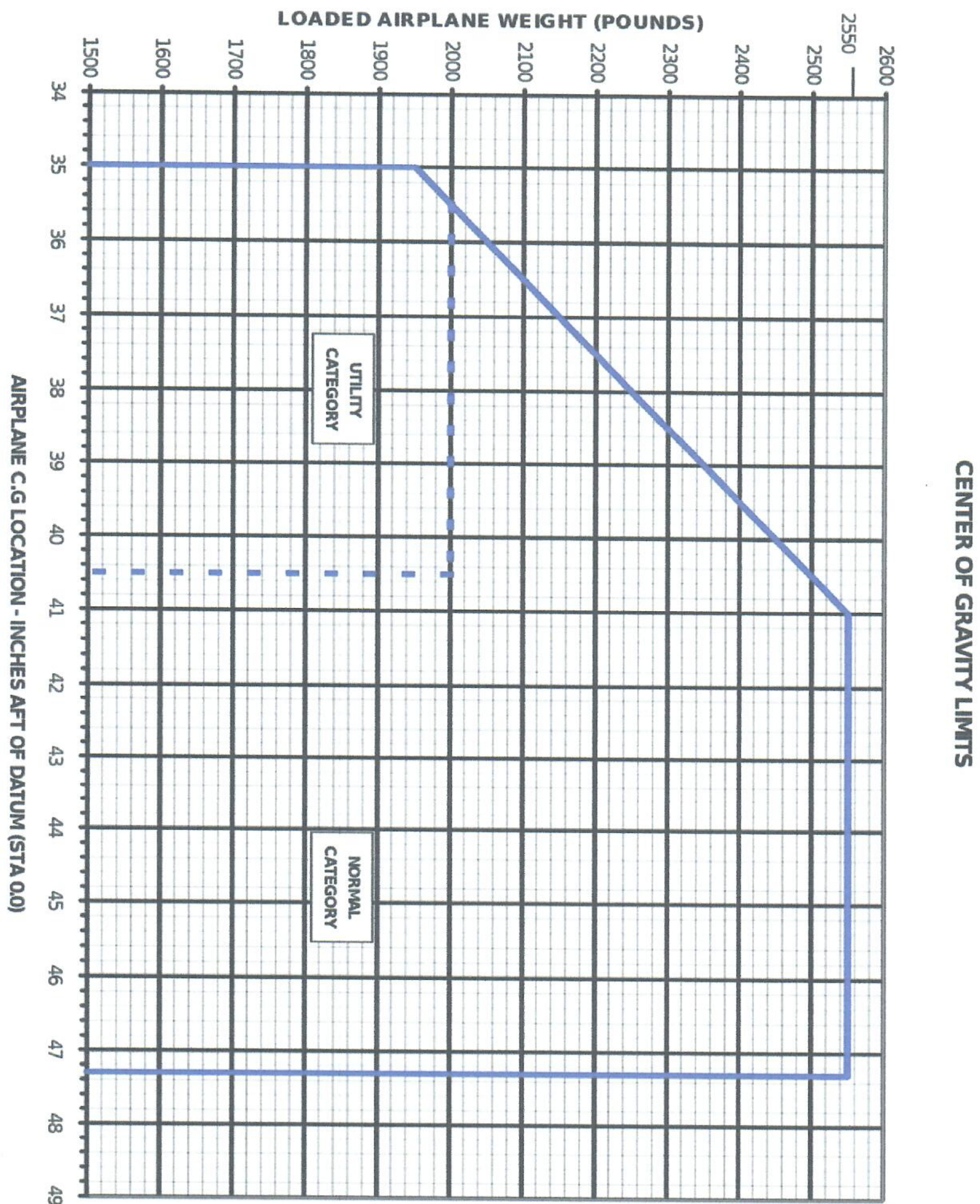
RANGE PROFILE

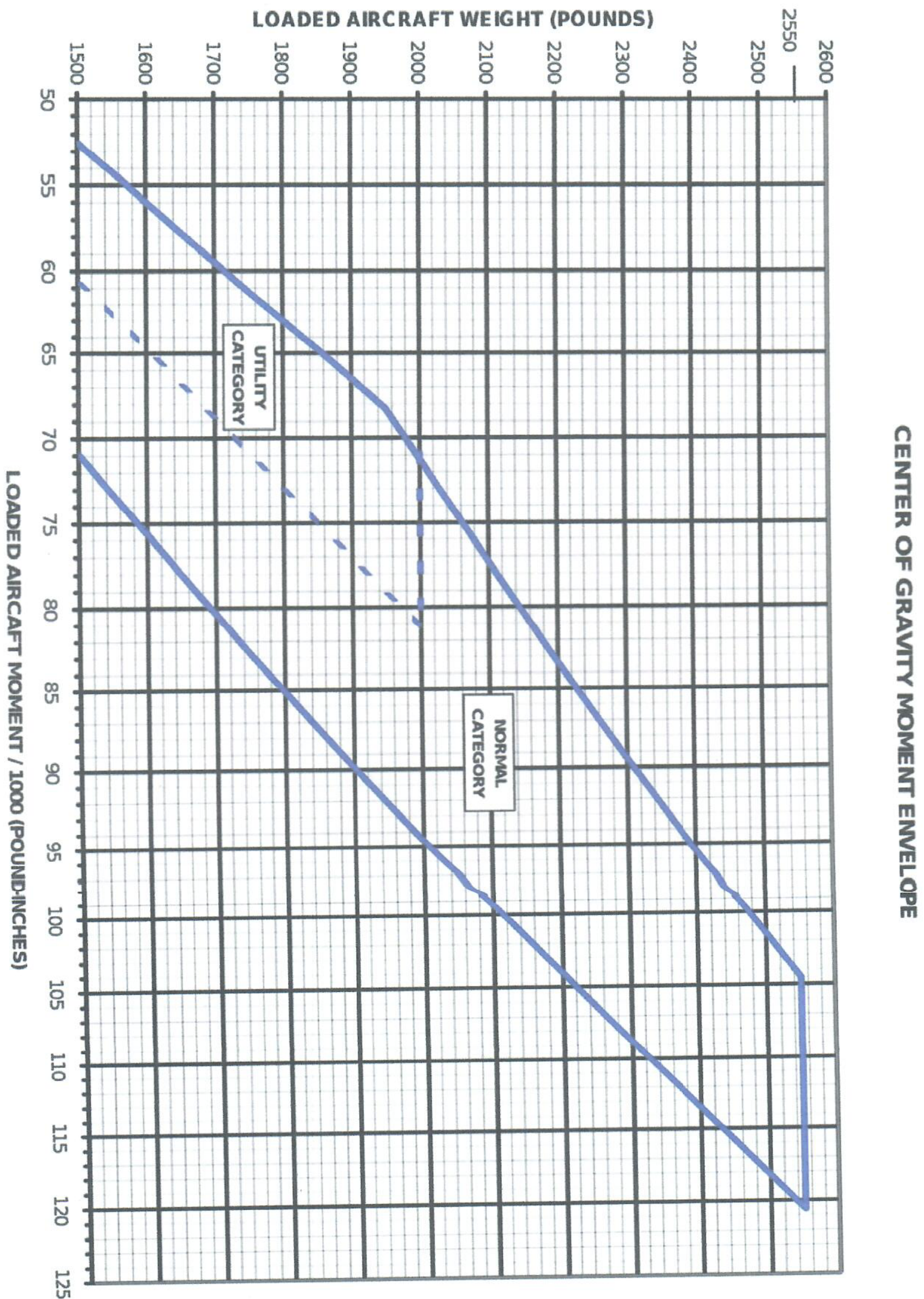
Compute range based on the available fuel load on the aircraft, altitude, ground speed and engine fuel consumption.

ENDURANCE PROFILE

Compute endurance based on the available fuel load on the aircraft and engine fuel consumption.

SECTION 6: WEIGHT AND BALANCE





SECTION 7: SERVICING REQUIREMENTS

To operate at the 2550 gross weight, the aircraft must be equipped with 6 or more ply tires on both the main wheels and nose wheel on all models.

- Tire Pressure should be:
 - ◆ Nose Gear 45 psi
 - ◆ Main Gear 38 psi