PERFORMANCE AND FLIGHT MONITORING 030

1 Maximum Landing Mass (MLM) is best defined as:

[A] Maximum permissible total mass after landing.
[B] Maximum permissible total mass on taxiing to park.
[C] Maximum permissible total mass on the approach to land.
[D] Maximum permissible total mass on landing under normal operating conditions.

2 What V speed is it important not to exceed if sudden full-pitch, nose-up, control movements are planned, and why?

[A] Vne, sudden control movements can cause structural damage.
[B] Vd, sudden control movements can cause a departure from controlled flight.
[C] Va, sudden control movements can cause structural damage.
[D] Vfb, sudden control movements can cause a departure from controlled flight.

3 What is the colour of the caution speed range on an Air Speed Indicator, and what must the pilot be mindful of when operating in this range?

[A] Green - Stalls, airframe deformations, and/or structural damage may occur in this range if the pilot uses abrupt and full control deflections.
[B] Yellow - This speed range should not be entered unless the air is smooth. Any manoeuvres should be made using small and gentle control inputs.
[C] Yellow - Stalls, causing airframe deformations, and/or structural damage may occur in this range if the pilot uses abrupt and full control deflections.
[D] Green - Control flutter may occur if turbulence is encountered.

4 What name is given to the load at which the aircraft structure will fail?

[A] Limit Load.
[B] Maximum Load.
[C] Ultimate Load.
[D] Safety Factor Load.

5 An aircraft which has been grossly overloaded will:
1.require increased take-off and landing distances.
2. Have a higher stalling speed.
3. Have a reduced maximum level flight speed.
4. Have increased range and endurance.
5. Have a reduced rate of climb and operating ceiling.
Which of the above are correct?

[A] 2, 4 & 5.
[B] 1, 2, 3 & 4.
[C] 1, 2, 3, & 5.
[D] 1, 2, 4 & 5.

6 Maximum Zero Fuel Mass (MZFM) is best defined as.

[A] Maximum permissible mass of the aircraft with no crew or fuel.
[B] Maximum permissible mass of the aircraft with no useable fuel.
[C] Maximum permissible mass of the aircraft without occupants and baggage.
[D] Maximum permissible mass of the aircraft with no passengers or fuel.

7 Maximum Take Of Mass (MTOM) is defined best as:

[A] Maximum permissible total mass prior to take off.
[B] Maximum permissible total mass at the point of rotation.
[C] Maximum permissible total mass at the start of the takeoff run.
[D] Maximum permissible total mass prior to taxiing.

8 Never exceed speed (VNE) is the red radial line on the ASI and marks the speed which:

[A] Flight is permitted in smooth conditions only.
[B] You cannot exceed.
[C] Prolonged flight is unsafe.
[D] Structural damage will occur.

9 When flying in very rough air what is the maximum speed to be adopted in order to avoid overstressing the airframe?

[A] Vd or Vno.
[B] Vra or Va.
[C] Vno or Vfe.
[D] Vd or Va.

10 Your aircraft has an oil reservoir with a capacity of 3 imp/gal which is positioned 20 inches aft of the datum. Given that the oil weighs 9.1 lbs/gal, the reservoir will possess a moment of:

[A] 546 lb in.
[B] 27.3 lb in.
[C] 182 lb in.
[D] 60 lb in.

11 Assuming the aircraft is at rest on the ground, what term best describes image "D"? (See LAPL/PPL 030-01)

[A] Zero Fuel Mass.
[B] Traffic Load.
[C] Empty Mass.
[D] Maximum All Up Mass.

12 An aircraft is loaded such that its C of G is on the aft limit:
I The stalling speed decreases
II Range and endurance increase
III The stalling speed increses
IV Stick forces increase

[A] Only I and IV are correct.
[B] Only II and IV are correct.
[C] I, II, and IV are correct.
[D] Only I and II are correct.

13 Certification requirements stipulate that when loading a light aircraft:

[A] All seats, baggage compartments and fuel tanks are contained within the C of G limits so that it is impossible to load the aircraft beyond its limits.
[B] With maximum traffic load and full fuel the aircraft will not exceed the authorised Maximum Takeoff Mass.
[C] That the Maximum Take-off Mass is not exceeded, and the CofG remains at least 5% inside the C of G limits.
[D] The C of G should remain within the defined limits and the Maximum Take-off Mass must not be exceeded.

14 The Maximum Take-off Mass of an aircraft may be limited by:

[A] Structural design load limits and/or altitude and temperature.
[B] All answers are correct.
[C] The airworthiness condition of the aircraft.
[D] The authorised performance category of the aircraft, i.e. utility / normal / aerobatic.

15 An aircraft loaded in a dangerous manner, so that its C of G is beyond its forward limit will:

[A] Require less effort to flare when landing.
[B] Have both an increased longitudinal stability and stalling speed.
[C] Require less effort to rotate on takeoff.
[D] Have both an increased range and endurance.

16 The flight characteristics of an aircraft which has its C of G at the forward limit will be:

[A] Insensitivity to Pitch Control and great Longitudinal Stability.
[B] Insensitivity to Pitch Control and little Longitudinal Stability.
[C] Sensitivity to Pitch Control and little Longitudinal Stability.
[D] Sensitivity to Pitch Control and great Longitudinal Stability.

17 An aircraft weighing 2000 lbs with a total CofG moment of + 169400 lb in uplifts 440 lbs of fuel. If the effective arm of the fuel is 88.5 inches aft of the datum, what will be the aircraft's new mass and C of G moment?

[A] 1560 lbs +208340 lb in.
[B] 2440 lbs +169488.5 lb in.
[C] 1560 lbs +169488.5 lb in.
[D] 2440 lbs +208340 lb in.

18 You plan to carry your aircraft's maximum permissible 'Traffic Load'. Your principal consideration during your flight planning will be that:

[A] The 'Traffic Load' may have to be reduced to allow for the full fuel load.
[B] The fuel load is accounted for in 'Traffic Load' calculations.
[C] It is mandatory to carry a full fuel load when carrying passengers.
[D] Your fuel load may have to be limited to prevent you exceeding the Maximum All Up Weight / Mass.

19 Traffic Load:

[A] Includes drinkable water and lavatory chemicals.
[B] Is the total mass of passengers, baggage and freight.
[C] Is the total mass of passengers, baggage and freight and fuel.
[D] Includes the Basic Empty Mass.

20 The consequences of operating an aeroplane with the C of G beyond the aft limit will be:
I On the ground the aircraft would be tail heavy and passenger or crew movement or fuel usage could make it tip up.
II The flying controls would be too sensitive increasing the risk of a tail strike at rotation.
III The tendency to stall would increase and it may be impossible to achieve "hands off" balanced flight.
IV Recovery from a spin would be much more difficult.

[A] Only statements I and IV are correct.
[B] All statements are correct.
[C] Only statement I is correct.
[D] Only statements II and III are correct.

21 Assuming the aircraft is at rest on the ground, what term best describes image A? (See LAPL/PPL 030-01)

[A] Maximum All Up Mass.
[B] Take Off Mass.
[C] Zero Fuel Mass.
[D] Empty Mass.

22 In which Category, Utility or Normal, would you expect to operate the aircraft represented in the attached CofG / Moment Envelope if its mass is 2100 lbs and its CofG Moment 90,000 lb inches? (See LAPL/PPL 030-02)

[A] Normal and Utility.
[B] Utility.
[C] Heavy duty.
[D] Normal.

23 What is used as the aircraft reference for the C of G limit, and upon which axis is that limit found?
Axis / Reference

[A] Vertical / Wheels.
[B] Lateral / Tail.
[C] Longitudinal / Datum.
[D] Normal / Spinner.

24 C of G limits are set by the manufacturer and:

[A] Are mandatory.
[B] Have only a forward limit.
[C] Have only an aft limit.
[D] Are a guide only.

25 Your aircraft has:
A Take-off Mass of = 2353 lbs.
A calculated C of G for departure = 89.75 inches aft of the datum.
An estimated fuel burn = 200 lbs with a C of G 85.00 inches aft of datum.
The position of the C of G on landing will be?

[A] 105.98 inches aft of the datum.
[B] 96.97 inches aft of the datum.
[C] 90.19 inches aft of the datum.
[D] 82.52 inches aft of the datum.

26 The Centre of Gravity range of most aircraft reduces as the aircraft mass increases, as a result of:

[A] The forward C of G limit moving rearwards to reduce stability.
[B] The aft C of G limit moving forward to increase stability.
[C] The aft C of G limit moving rearwards to extend the static margin.
[D] The static margin moving forward to reduce manoeuvrability.

27 When calculating the MZFM (maximum zero fuel mass), the following are included:

[A] Crew, Passengers & Baggage.
[B] Drinkable water and lavatory chemicals.
[C] Crew, Passengers, Baggage & Catering.
[D] Crew, Passengers, Baggage, Catering & Fuel.

28 What effect will a higher aircraft mass have on rotate speed and stalling speed?

[A] It will increase rotate speed and decrease stalling speed.
[B] It will increase both speeds.
[C] It will decrease both speeds.
[D] It will decrease rotate speed and increase stalling speed.

29 What is the effect of runway slope on the take-off?

[A] A downhill slope will increase the take-off distance.
[B] An uphill slope will increase the take-off performance.
[C] A downhill slope will decrease the take-off performance.
[D] An uphill slope will increase the take-off distance.

30 That part of a runway surface which is used for normal operations during take-off, excluding any clearway or stopway, is referred to as:

[A] The emergency distance available (EMDA).
[B] The take-off distance available (TODA).
[C] The landing distance available (LDA).
[D] The take-off run available (TORA).

31 If the density of the atmosphere is reduced, the take-off distance will be:

[A] Decreased.
[B] Controlled by wind.
[C] Increased.
[D] Unaffected.

32 If the density of the air is increased above ISA conditions, the effect will be:

[A] To increase the take-off distance.
[B] To increase the take-off performance.
[C] To decrease just the take-off run.
[D] To decrease the take-off performance.

33 When the density of the atmosphere is relatively low, the resulting reduction in:

[A] Thrust and drag has no apparent effect on the take-off distance required.
[B] Both lift and engine power will require a longer take-off distance.
[C] Drag offsets the loss of engine power giving improved acceleration.
[D] Drag will permit the use of greater flap angles.

34 The main reason for taking off into wind is to:

[A] Increase the ground speed of the aircraft.
[B] Increase the take-off distance.
[C] Decrease the takeoff distance available (TODA).
[D] Decrease the ground speed of the aircraft at lift-off.

35 Increasing the aeroplane's gross weight will have what effect on the take-off?

[A] Increase the stall speed and decrease the take-off run required.
[B] Decrease the stall speed and the take-off run required.
[C] Decrease the stall speed and increase the take-off run required.
[D] Increase the stall speed and the take-off run required.

36 What is the reason for increasing the speed in a prolonged climb?

[A] To reduce the noise of the aircraft in sensitive areas.
[B] To maintain the best angle of climb speed.
[C] To increase the flow of air through the engine and keep it cool.
[D] To maintain the best rate of climb speed.

37 Climbing at Vy will achieve:

[A] The maximum increase in height in the shortest horizontal distance.
[B] The best obstacle clearance performance.
[C] The greatest increase in altitude in a given period of time.
[D] The maximum angle of climb.

38 To gain the greatest amount of height in the shortest time period the aircraft should be flown at:

[A] The best angle of climb speed (Vx).
[B] At the speed for maximum endurance.
[C] The best rate of climb speed (Vy).
[D] 60 kt.

39 Increasing the mass (and, therefore, weight) of the aircraft will:

[A] Increase the rate and angle of climb.
[B] Increase the rate of climb and decrease the angle of climb.
[C] Decrease the rate and angle of climb.
[D] Decrease the rate of climb and increase the angle of climb.

40 The best rate of climb is achieved:

[A] When flying at the speed for maximum excess power available.
[B] When climbing into wind.
[C] When flying at Vx.
[D] When flying at the speed for maximum excess thrust available.

41 The indicated air speed for the best rate of climb when climbing to cruise altitude will tend to:

[A] Remain the same.
[B] Decrease then increase.
[C] Decrease as the power of the engine decreases.
[D] Increase.

42 The lift produced by the wing of an aeroplane that is climbing and maintaining a constant airspeed will be:

[A] Equal to weight.
[B] Greater than weight.
[C] Independent of weight.
[D] Less than weight.

43 An aircraft cruising at 2000ft is cleared to climb to 8000ft. Calculate the time taken in minutes, the fuel used in gallons and the distance flown during the climb. The temperature is standard and the wind is calm. (See LAPL/PPL 030-04)

Time (mins) / Fuel (gal) / Distance (nm)

[A] 15 / 3,0 / 21
[B] 12 / 2,3 / 17
[C] 18 / 3,7 / 25
[D] 3 / 0,7 / 4

44 Climbing at Vx will achieve:

[A] The greatest increase in altitude in a given period of time.
[B] The best time to height.
[C] The maximum angle of climb.
[D] The maximum horizontal distance for a given vertical distance.

45 The centre of gravity is moved backwards. The effect is?

[A] A greater tail load.
[B] A stronger lift-weight couple which requires more tail plane down force.
[C] A reduced range and endurance.
[D] An increased range and endurance.

46 What speed should be flown for maximum range? (See LAPL/PPL 030-05)

[A] A.
[B] D.
[C] B.
[D] C.

47 What is the maximum range speed for a piston engine aircraft?

[A] VMP.
[B] At a higher speed than VNO and at the lowest safe altitude.
[C] At a speed less than VMD and at the lowest safe altitude.
[D] VMD.

48 In order to maximise the glide range, the aircraft should be flown:

[A] At low angles of attack at VMP.
[B] At low angles of attack at VMD.
[C] At a negative angle of attack at VMD.
[D] At high angles of attack at VMD.

49 What is the effect of a headwind on the glide angle and glide distance?

[A] Glide angle will remain the same and glide distance will remain the same.
[B] Glide angle will increase and glide distance increase.
[C] Glide angle will increase and glide distance decrease.
[D] Glide angle will decrease and glide distance decrease.

50 What speed must be flown to attain the maximum cruise endurance?

[A] VY.
[B] VMD.
[C] Maximum speed.
[D] VMP.

51 The maximum glide range will be achieved by:

[A] A negative angle of attack being maintained.
[B] A relatively low angle of attack being maintained.
[C] A high descent angle.
[D] A relatively high angle of attack being maintained.

52 If weight is increased, the range of the aircraft will be:

[A] Unchanged.
[B] Increased.
[C] Reduced.
[D] Reduced or increased depending on cruising speed.

53 When gliding for maximum range, an aircraft with a greater weight will:

[A] Have a reduced glide range.
[B] Have a faster descent speed but the same descent angle.
[C] Have a shallower descent angle.
[D] Have a faster descent speed and a reduced descent distance.

54 What speed must be flown to attain the maximum cruise range?

[A] VX.
[B] VMP.
[C] Maximum speed.
[D] VMD.

55 What would be the effect of an increase in temperature upon the air density and aircraft performance?

[A] Increased density and increased aircraft performance.
[B] Reduced density and reduced aircraft performance.
[C] Increased density and reduced aircraft performance.
[D] Reduced density and an increase in aircraft performance.

56 Compared to gliding in still air, the effect of a tailwind will:

[A] Have no effect on the glide range or the rate of descent.
[B] Increase the glide angle and increase the glide range.
[C] Decrease the glide angle and decrease the rate of descent.
[D] Increase the glide range but have no effect on the glide endurance.

57 Which of the speeds indicated by A, B, C or D should be flown for maximum endurance? (See LAPL/PPL 030-05)

[A] D.
[B] A.
[C] B.
[D] C.

58 What is the effect of an increase in mass on the stalling speed and landing distance required?

[A] Increased stall speed and decreased landing distance.
[B] Increased stall speed and increased landing distance.
[C] Decreased stall speed and decreased landing distance.
[D] Decreased stall speed and increased landing distance.

59 When landing, if an aircraft's true air speed is significantly less than the true ground speed then the aircraft is experiencing:

[A] A reduced atmospheric density.
[B] A cross wind.
[C] A tailwind.
[D] A headwind.

60 If the approach and landing speed is higher than recommended speed in the aircraft manual the effect will be that:

[A] The landing distance will be decreased.
[B] The landing distance will be unaffected.
[C] The landing distance will be increased.
[D] The landing performance will improve.

61 What effect would a 1% downslope have on the landing distance required?

[A] Increase it by 10%.
[B] Decrease it by 5%.
[C] Decrease it by 10%.
[D] Increase it by 5%.

62 Compared to landing on a level runway, what would be the effect of landing on a downward sloping runway?

[A] The landing distance will be decreased.
[B] The landing distance will be increased.
[C] The landing distance will be unaffected.
[D] The landing performance will improve.

63 If the stalling speed in the landing configuration is 55 knots. VREF would be approximately:

[A] 75kt.
[B] 65kt.
[C] 69kt.
[D] 71kt.

64 The VREF to be attained by the landing screen height of 50ft must be:

[A] 33% of stall speed.
[B] 1.43 times the stalling speed in the landing configuration.
[C] 1.3 times the stalling speed in the landing configuration.
[D] 1.15 times the stalling speed in the takeoff configuration.

65 If the aircraft mass is increased by 15%, the landing distance required will increase approximately:

[A] 10% or by a factor of 1.1.
[B] 20% or by a factor of 1.2.
[C] 33% or by a factor of 1.33.
[D] 15% or by a factor of 1.15.

66 Landings are carried out into wind because:

[A] It will reduce the ground speed and reduce the landing distance required.
[B] It increases the ground speed and reduces the landing distance required.
[C] It decreases the ground speed and reduces the landing distance available.
[D] It gives the pilot greater control over the aircraft at lower speeds.

67 Determine if the aircraft mass is inside the limits (normal category). (See LAPL/PPL 030-10)

	mass (lb)	moment/1000 (lbxin)
Empty mass	**1,350**	**51,5**
Pilot and front passenger	**360**	
Rear passengers	**280**	
Fuel	**30 US gal.**	
Oil	**8 qt**	**-0,2**

[A] Forward of the forward limit.
[B] Inside limits, close to the forward limit.
[C] Aft of the aft limit.
[D] Inside limits.

68 What is the maximum amount of fuel that may be aboard the airplane on takeoff if loaded as follows? (See LAPL/PPL 030-10)

	mass (lb)	moment/1000 (lbxin)
Empty mass	**1,350**	**51,5**
Pilot and front passenger	**340**	
Rear passengers	**310**	
Baggage	**45**	
Oil	**8 qt**	**-0,2**

[A] 34 USA gal.
[B] 40 USA gal.
[C] 46 USA gal.
[D] 24 USA gal.

69 GIVEN:

	mass (lb)	arm(in)	moment (lbxin)
Empty mass	**1,495.0**	**101.4**	**151,593.0**
Pilot and passenger	**380.0**	**64.0**	
Fuel (100LL 0,72 kg/l)	**30 US gal**	**96.0**	

The CG is located how far aft of datum?

[A] 92.44 in.
[B] 119.80 in.
[C] 94.01 in.
[D] 135.00 in.

70 Determine the moment with the following data: (See LAPL/PPL 030-10)

	mass (lb)	moment/1000 (lbxin)
Empty mass	**1,350**	**51.5**
Pilot and front passenger	**340**	
Fuel (full std. tanks)		
Oil	**8 qt**	**-0.2**

[A] 74.9 lbxin.
[B] 69.9 lbxin.
[C] 38.7 lbxin.
[D] 77.0 lbxin.

71 What is the maximum amount of baggage that may be loaded aboard the normal category airplane for CG to remain inside proper limits? (See LAPL/PPL 030-10)

	mass (lb)	moment/1000 (lbxin)
Empty mass	**1,350**	**51.5**
Pilot and front passenger	**250**	
Rear passengers	**400**	
Fuel	**30 US gal.**	
Baggage		
Oil	**8 qt**	**-0.2**

[A] 90 lbs.
[B] 105 lbs.
[C] 75 lbs.
[D] 120 lbs.

72 The easiest way to determine the pressure altitude is setting an altimeter to:

[A] 1013.2 hPa and reading the altitude.
[B] The airport elevation and reading the value in the barometric window.
[C] Zero and reading the value in the barometric window.
[D] The airport elevation and reading the altitude.

73 Basic reason for calculating the density altitude is determining:

[A] The pressure altitude.
[B] The flight levels above the transition altitude.
[C] The safe altitude over mountainous terrain.
[D] The aircraft performance.

74 What is pressure altitude?

[A] The indicated altitude corrected for position and installation error.
[B] The altitude indicated when the barometric pressure scale is set to QFE.
[C] The altitude indicated when the barometric pressure scale is set to 1013.2 hPa.
[D] The indicated altitude corrected for nonstandard temperature and pressure.

75 Under which condition will pressure altitude be equal to true altitude?

[A] When indicated altitude is equal to the pressure altitude.
[B] When standard atmospheric conditions exist.
[C] If the altimeter has no mechanical error.
[D] When the atmospheric pressure is 1013.2 hPa.

76 Which of the factors below increases the density altitude of an airport?

[A] Increase of temperature.
[B] Increase of atmospheric pressure.
[C] Decrease of temperature.
[D] Decrease of relative humidity of the air.

77 If the outside air temperature (OAT) at a given altitude is lower than standard, the density altitude is:

[A] Lower than true altitude.
[B] Higher than pressure altitude.
[C] Higher than true altitude and lower than pressure altitude.
[D] Lower than pressure altitude and approximately equal to true altitude.

78 What is density altitude?

[A] The pressure altitude corrected for nonstandard temperature.
[B] The height above the standard datum plane.
[C] The altitude read directly from the altimeter.
[D] The altitude indicated when the barometric pressure scale is set to 1013.2 hPa.

79 Determine approximately density altitude of an airport, where the temperature is standard and an altimeter set to 1011hPa, reads 1,300 ft:

[A] 1,360 ft.
[B] 1,240 ft.
[C] 1,400 ft.
[D] 1,300 ft.

80 What is increase in density altitude if a temperature increases from 0 to 10°C and if the pressure altitude of an airport remains 3,000 ft?

[A] 2,000 ft.
[B] 1,200 ft.
[C] 2,200 ft.
[D] 3,000 ft.

81 What is the effect of a temperature increase of 12°C on the density altitude?

[A] 1,440-foot increase.
[B] 1,650-foot decrease.
[C] 1,650-foot increase.
[D] 1,340-foot decrease.

82 Determine the density altitude of an airport for these conditions:
QNH 1025 hPa
Temperature -4°C
Elevation 3,850 ft

[A] 2,900 ft.
[B] 3,800 ft.
[C] 2,050 ft.
[D] 3,500 ft.

83 Determine the density altitude of an airport for these conditions:
QNH 1010 hPa
Temperature 27°C
Elevation 5,250 ft

[A] 4,600 ft.
[B] 8,800 ft.
[C] 7,890 ft.
[D] 5,875 ft.

84 The density altitude could be approximately calculated from the pressure altitude without using a navigation calculator by

[A] Increasing/decreasing the altitude above the sea level for the difference between the standard and actual atmospheric pressure, converted into an altitude.
[B] Decreasing the pressure altitude by 4% for each 5°C deviation from the standard temperature.
[C] Increasing the pressure altitude by 4% for each 10°C deviation from the standard temperature.
[D] Increasing/decreasing the pressure altitude by 120 ft for each °C deviation above/below the standard temperature.

85 Which of the statements below, concerning take-off performance of a powered aircraft regarding the density altitude is correct?

At higher density altitudes:

[A] Aircraft accelerate better, because of reduced drag due to thinner air.
[B] Aircraft accelerate poorer, because of reduced engine and propeller efficiency.
[C] Aircraft must fly at lower-than-normal indicated airspeed in order to prevent excessive lift.
[D] Aircraft must fly at higher-than-normal indicated airspeed in order to produce enough lift.

86 How does higher air humidity affect aircraft take-off performance?

Take-off distances are:

[A] Shorter due to denser air.
[B] Longer due to thinner air.
[C] Longer due to denser air.
[D] Shorter due to thinner air.

87 Which combination of atmospheric conditions will reduce aircraft takeoff and climb performance?

[A] Low temperature, high relative humidity and high density altitude.
[B] High temperature, low relative humidity and low density altitude.
[C] Low temperature, low relative humidity and low density altitude.
[D] High temperature, high relative humidity and high density altitude.

88 What influence does the increased mass have on powered aircraft takeoff performance?

[A] Each aircraft at given engine power accelerate equally regardless of the mass and the airspeed required for production of the lift necessary for lift-off remains unchanged.
[B] Each aircraft at given engine power accelerate equally regardless of the mass, however the airspeed required for overcoming the ground effect is greater.
[C] At given engine power the aircraft accelerates better, however the airspeed required for production of the lift necessary for lift-off remains unchanged.
[D] At given engine power the aircraft accelerates poorer; the airspeed required for the production of the lift necessary for leaving the ground is greater.

89 What effect does an uphill runway slope have on takeoff performance?

[A] Increases takeoff speed.
[B] Increases takeoff distance.
[C] Decreases takeoff speed.
[D] Decreases takeoff distance.

90 What effect does high density altitude have on aircraft performance?

[A] It reduces climb performance.
[B] It increases climb performance.
[C] It increases takeoff performance.
[D] It increases engine performance.

91 The airplane's or powered hang glider's best angle-of-climb speed (Vx) is used:

[A] When clearing a moving obstacle.
[B] When trying to climb without sacrificing cruising speed.
[C] When trying to get cruising altitude quickly.
[D] When clearing an obstacle.

92 Which speed would provide the greatest gain in altitude in the shortest distance during climb after takeoff?

[A] Maneuvering speed (Va).
[B] Best angle-of-climb speed (Vx).
[C] Best climb speed (Vy).
[D] Minimum speed (Vs).

93 The aircraft's rate-of-climb during a steady climb depends on

[A] Excess of thrust.
[B] Thrust available.
[C] Excess of power.
[D] Insufficient of power.

94 After takeoff, which airspeed would the pilot use to gain the most altitude in a given period of time?

[A] Best angle-of-climb speed (Vx).
[B] Maneuvering speed (Va).
[C] Best climb speed (Vy).
[D] Minimum speed (Vs).

95 What is the proper use for the best-rate-of-climb speed (Vy)?

[A] When approaching high mountains.
[B] When clearing an obstacle.
[C] When trying to get cruising altitude quickly.
[D] When trying to avoid an excessive pitch attitude during a climb.

96 What is the influence of the wind on an aeroplane's rate of climb?

[A] A headwind will increase the rate of climb.
[B] A tailwind will increase the rate of climb.
[C] A tailwind will decrease the rate of climb.
[D] No effect.

97 What influence does the wind have on an airplane's angle-of-climb?

[A] A headwind will steepen the angle-of-climb.
[B] A headwind will lessen the angle-of-climb.
[C] No effect.
[D] A tailwind will steepen the angle-of-climb.

98 The aircraft's climb angle during a steady climb depends on:

[A] Thrust required.
[B] Excess of thrust.
[C] Excess of power.
[D] Power available.

99 At takeoff from a short airfield with an airplane or a powered hang glider, which airspeed should you fly until cleared of obstacles?

[A] Best angle-of-climb speed (Vx).
[B] Maneuvering speed (Va).
[C] Minimum speed (Vs).
[D] Best climb speed (Vy).

100 During landing on an airport with high elevation the true air speed (TAS) of an aircraft is higher than normal. What indicated speed (IAS) should be kept in such cases?

[A] Normal speed, IAS.
[B] Higher than normal.
[C] Lower than normal.
[D] Increased for 5 kts for each 1,000 ft of airport elevation.

101 Should you use the normal approach speed when approaching to land in gusty wind conditions?

[A] No. Add one half the "gust factor" to the calculated approach speed.
[B] Yes (go by Operator's Manual).
[C] No. Use 1.2 times stall speed.
[D] No. Use 0.8 times stall speed.

102 Maximum structural cruising speed is the maximum speed at which an airplane can be operated:

[A] With flaps extended.
[B] At normal operations.
[C] During abrupt maneuvers.
[D] In smooth air.

103 Why should speeds in flight above VNE is prohibited?

[A] Excessive induced drag will result in a structural failure.
[B] Control effectiveness is so impaired that the aircraft becomes uncontrollable.
[C] Lift reverts and the aircraft will stall.
[D] The design limit factor may be exceeded, if gusts are encountered.

104 Which V-speed represents maneuvering speed?

[A] VNE.
[B] VX.
[C] VLO.
[D] VA.

105 Maneuvering speed (VA) is the highest speed at which even full abrupt deflection of the elevator will not exceed

[A] Load factor 1 g.
[B] Never exceed speed (VNE).
[C] Positive limit load factor.
[D] Negative limit load factor.

106 What does "Best Endurance Speed" for a propeller aircraft mean?

[A] Maximum time aloft per unit of fuel (flying with least power).
[B] Maximum time between two stops.
[C] Maximum distance per unit of fuel (flying with least drag).
[D] Maximum distance between two stops.

107 Determine the takeoff distance over a 50-foot obstacle under the following conditions: See LAPL/PPL 030-08

Pressure altitude 0 ft
temperature standard
mass 1900 lb
wind calm
surface grass, dry

[A] 1,180 ft.
[B] 950 ft.
[C] 1,030 ft.
[D] 920 ft.

108 Determine the ground roll distance required for takeoff: (See LAPL/PPL 030-08)

Pressure altitude 2,000 ft
temperature 40°C
mass 2100 lb
wind tail 4 kt
surface tarmac

[A] 935 ft.
[B] 1,120 ft.
[C] 850 ft.
[D] 565 ft.

109 Determine the takeoff distance over a 50-foot obstacle under the following conditions: (See LAPL/PPL 030-08)
pressure altitude 4,000 ft
temperature 15°C
mass 2300 lb
wind calm
surface asphalt

[A] 1,210 ft.
[B] 2,100 ft.
[C] 1,970 ft.
[D] 1,125 ft.

110 Determine the takeoff distance over a 50-foot obstacle under the following conditions: (See LAPL/PPL 030-08)
pressure altitude 2,000 ft
temperature 30°C
mass 2100 lb
wind head 18 kt
surface grass, dry

[A] 1,555 ft.
[B] 2,945 ft.
[C] 1,565 ft.
[D] 1,350 ft.

111 Determine the total distance required to land. (See LAPL/PPL 030-09)
pressure altitude 1,000 ft
temperature 30°C
mass 2300 lb
wind head 9 kt
surface tarmac

[A] 1197 ft.
[B] 565 ft.
[C] 509 ft.
[D] 1330 ft.

112 Determine the ground roll distance after landing. (See LAPL/PPL 030-09)
pressure altitude 0 ft
temperature 10°C
mass 2300 lb
wind head 10 kt
surface grass, dry

[A] 1235 ft.
[B] 739 ft.
[C] 1790 ft.
[D] 510 ft.

113 Determine the ground roll distance after landing. (See LAPL/PPL 030-09)
pressure altitude 0 ft
temperature 15°C
mass 2300 lb
wind calm
surface tarmac

[A] 545 ft.
[B] 520 ft.
[C] 510 ft.
[D] 530 ft.

114 Determine the ground roll distance after landing. (See LAPL/PPL 030-09)

pressure altitude 3,000 ft
temperature 20°C
mass 2300 lb
wind calm
surface grass, dry

[A] 590 ft.
[B] 685 ft.
[C] 660 ft.
[D] 855 ft.

115 Determine the total distance over a 50-foot obstacle required to land. (See LAPL/PPL 030-09)

pressure altitude 1,000 ft
temperature 10°C
mass 2300 lb
wind tail 10 kt
surface tarmac

[A] 1360 ft.
[B] 1265 ft.
[C] 1850 ft.
[D] 1,900 ft.

116 Determine the total distance over a 50-foot obstacle required to land. (See LAPL/PPL 030-09)

pressure altitude 1,500 ft
temperature 30°C
mass 2300 lb
wind calm
surface tarmac

[A] 1,350 ft.
[B] 1,320 ft.
[C] 1,280 ft.
[D] 1,385 ft.

117 Determine the total distance over a 50-foot obstacle required to land. (See LAPL/PPL 030-09)

pressure altitude 0 ft
temperature 0°C
mass 2300 lb
wind head 18 kt
surface grass, dry

[A] 965 ft.
[B] 1,140 ft.
[C] 1,205 ft.
[D] 1,445 ft.

118 What will be the airspeed of an airplane in level flight under the following conditions? (See LAPL/PPL 030-07)
pressure altitude 8,000 ft
temperature 20°C below standard
power setting 55%

[A] 104 kts.
[B] 110 kts.
[C] 120 kts.
[D] 115 kts.

119 What is the expected fuel consumption for a 250-nautical flight under the following conditions?
(See LAPL/PPL 030-07)
pressure altitude 6,000 ft
temperature 20°C above standard
power setting 60%
wind calm

[A] 16.0 USA gal.
[B] 12.0 USA gal.
[C] 19.7 USA gal.
[D] 15.1 USA gal.

120 What is the expected fuel consumption for a 350-nautical flight under the following conditions?
(See LAPL/PPL 030-07)
pressure altitude 4,000 ft
temperature 20°C below standard
power setting 60%
wind calm

[A] 15.3 USA gal.
[B] 18.6 USA gal.
[C] 14.9 USA gal.
[D] 22.7 USA gal.

121 Approximately what engine RPM should be set during cruising at the pressure altitude 2,000 ft and with standard temperature in order to develop 60% of power? (See LAPL/PPL 030-07)

[A] 2400 RPM.
[B] 2500 RPM.
[C] 2300 RPM.
[D] 2200 RPM.

122 What is the expected fuel consumption under the following conditions? (See LAPL/PPL 030-07)
pressure altitude 8,000 ft
temperature 20°C below standard
power setting 55%

[A] 5.8 USA gal/h.
[B] 5.2 USA gal/h.
[C] 5.7 USA gal/h.
[D] 6.2 USA gal/h.

123 Which forward speed is normally maintained, following an engine failure in flight in a light airplane?

[A] Minimum rate of descend speed.
[B] Best endurance speed.
[C] Best glide speed.
[D] Minimum speed.

124 The forward speed for minimum rate of descent of an aircraft, compared with its best glide speed, is:

[A] Always lower.
[B] Often higher.
[C] Often lower.
[D] Always higher.

125 What should be done first, following an aircraft's engine failure in flight?

[A] Select the gliding attitude with best glide speed.
[B] Move the mixture lever to position FULL RICH.
[C] Select a suitable field for forced landing.
[D] Carburetor heat must be applied.

126 An aircraft without an engine will fly the longest distance from a given altitude at the angle of attack at which:

[A] Parasite drag is equal to the lift coefficient.
[B] Parasite drag is the least.
[C] Lift coefficient retains its maximum value.
[D] Induced drag and parasite drag are equal.

127 What is the headwind component for a landing on Runway 18 if the tower reports the wind as 220°/30 kts? (See LAPL/PPL 030-06)

[A] 30 kts.
[B] 34 kts.
[C] 23 kts.
[D] 19 kts.

128 What is the crosswind component for a landing on Runway 18 if the tower reports the wind as 220°/30 kts? (See LAPL/PPL 030-06)

[A] 19 kts.
[B] 30 kts.
[C] 23 kts.
[D] 34 kts.

129 Which runway (06, 14, 24, 32) will you choose for landing, if tower reports south wind 20 kts and if maximum allowed crosswind component for your aircraft is 13 kts? (See LAPL/PPL 030-06)

[A] RWY 24.
[B] RWY 32.
[C] RWY 14.
[D] RWY 06.

130 With the reported wind of 360°/20 kts you are approaching an airport. Which runway (06, 14 or 24) would you choose for landing, if your airplane had a 13-knots maximum allowed crosswind component on landing? (See LAPL/PPL 030-06)

[A] RWY 32.
[B] RWY 06.
[C] RWY 14.
[D] RWY 24.

131 What are the headwind and crosswind components with the reported wind of 280°/15 kts for a runway with the magnetic direction 220°? (See LAPL/PPL 030-06)

[A] 15.5 kts headwind and 15 kts crosswind.
[B] 15.5 kts headwind and 8 kts crosswind.
[C] 7.5 kts headwind and 13 kts crosswind.
[D] 13.5 kts headwind and 24 kts crosswind.

132 Determine the maximum wind velocity for a 45° crosswind if the maximum crosswind component for the airplane is 25 kts? (See LAPL/PPL 030-06)

[A] 35 kts.
[B] 29 kts.
[C] 18 kts.
[D] 25 kts.

133 Determine the maximum wind velocity for a 40° crosswind if the maximum crosswind component for the airplane is 10 kts? (See LAPL/PPL 030-06)

[A] 15 kts.
[B] 12 kts.
[C] 18 kts.
[D] 20 kts.

134 Determine the maximum wind velocity for a 30° crosswind if the maximum crosswind component for the airplane is 10 kts? (See LAPL/PPL 030-06)

[A] 16 kts.
[B] 20 kts.
[C] 13 kts.
[D] 18 kts.

135 What are the headwind and crosswind components with the reported wind of 030°/10 kts for a runway with the magnetic direction 330°? (See LAPL/PPL 030-06)

[A] 10 kts headwind and 8 kts crosswind.
[B] 5 kts headwind and 8 kts crosswind.
[C] 8 kts headwind and 4 kts crosswind.
[D] 8 kts headwind and 8 kts crosswind.

136 AIP Supplements:

[A] Change permanently information given in AIP.
[B] Change temporary information given in AIP.
[C] Are published in white paper.
[D] Are published in blue paper.

137 If an aircraft does not give announcement from departure within 30 minutes from the time written in the flight plan, the phase that starts is called:

[A] Distress phase
[B] Uncertainty phase
[C] Alert phase
[D] Exception phase

138 Which of the following is the best way to check the fuel amount before a flight?

[A] With fuel gauge instruments during engine run-up
[B] Comparing fuel gauge reading and the amount measured from the tanks.
[C] Ask about it from the last person who flew the plane.
[D] Ask about it from the person who filled up the tank.

139 Which of the following is the density that is used when counting mass of 100LL fuel?

[A] 0,72 kg/l
[B] 0,62 kg/l
[C] 0,68 kg/l
[D] 0,99 kg/l

140 Clearway is:

[A] TODA - TORA, and is has nothing to do with landing distance calculations.
[B] TORA + ASDA, and it can not be used when calculating landing distance.
[C] ASDA - TORA, and it can be fully used when calculating acceleration-stop distance.
[D] TODA - TORA, and it can be fully used when calculating landing distance.

141 Runway lenghts available (TORA, TODA, ASDA, LDA) can be found from:

[A] AIP part AD
[B] AIP part GEN
[C] ICAO Annex 14
[D] ICAO VFR chart

142 Which of the following statement concerning the 45 minutes final reserve fuel is correct?

[A] That much fuel must be left in the tanks after a cross-country flight.
[B] The 45 minutes final reserve obligates only jet aircfats.
[C] That is the minimum amount of fuel that must be left after a flight. If this reserve is used during the flight it is an emergency situation.
[D] This fuel amount does not obligate private flight operations.

143 AIP Supplements can be found from:

[A] OPS M1-6
[B] AIP part 1
[C] Rules of the air (SERA)
[D] NOTAM file from Briefing

144 Altitudes for Rovaniemi aerodrome traffic circuit can be found from:

[A] Air traffic controller's handbook, "Aerodromes"
[B] AIP part 1
[C] Rules of the air, "minimum altitudes"
[D] 1:500000 VFR chart

145 What is a standard mass for a 2-12 years old child in flight operations with an aircraft which maximum certificated take-off mass is 5700 kg?

[A] 40 kg.
[B] 35 kg.
[C] 30 kg.
[D] 25 kg.

146 What is a standard mass for an adult in flight operations with an aircraft which maximum certificated take-off mass is 5700 kg?

[A] 80 kg.
[B] 85 kg.
[C] 75 kg.
[D] 70 kg.

147 In VFR flight, an aircraft must have enough fuel for:

[A] Starting an engine, engine run-up, taxi, a flight from departure to destination aerodrome, and also a 45 minutes final reserve.
[B] A flight from departure to destination aerodrome, and also a 30 minutes final reserve.
[C] Starting an engine, engine run-up, a flight from departure to destination aerodrome, and also a 30 minutes final reserve.
[D] A flight from depature to destination aerodrome, and also a 45 minutes final reserve.

148 Incorrectly loaded helicopter:

[A] Is only harder to control in autorotation when the engine is not on
[B] Helicopter can not end up in uncontrolled state
[C] Might be impossible to control already when starting to hover
[D] Is usually easier to control than correctly loaded helicopter

149 Which of the following factors does NOT affect on the longest possible range speed?

[A] Helicopter's weight
[B] Retreating blade stall
[C] Head wind
[D] Density altitude.

150 Which of the following has an effect on the power given by a piston engine?

[A] Helicopter's configuration
[B] Air speed
[C] Helicopter's weight
[D] Density altitude

151 If the C of G is too behind:

[A] More pull is demanded to control stick
[B] Hovering is more difficult
[C] Helicopter is nose-heavy
[D] Autorotation flare can be impossible

152 Helicopter's longest gliding distance is achieved with a combination of:

[A] High speed-high rpm
[B] Low speed-low rpm
[C] High speed-low rpm
[D] Low speed-high rpm

153 If the C of G is too front:

[A] More push to control stick is needed.
[B] Flying at hight speeds can be impossible
[C] Might be difficult to flareout during landing
[D] Push after flare can be impossible to proceed

154 Your speed is to low when the aircraft rotates. What is the consequence?

[A] You fly at best best rate of climb speed.
[B] Take-off distance increases.
[C] Stalling speed decreases.
[D] You fly at best angle of climb speed.

155 Density altitude means:

[A] True altitude +/- temperature correction.
[B] Altitude from mean sea level at a certain temperature.
[C] Pressure altitude in ISA conditions +/- temperature correction.
[D] Pressure altitude in relation to airfield's elevation.

156 Which of the following does not affect on the power that helicopter requires?

[A] Air speed.
[B] Density altitude.
[C] Engine power.
[D] Helicopter's configuration.

157 Which of the following does not decrease helicopter's performance?

[A] Waxing the blades
[B] Ice on the blades
[C] Bugs on the blades
[D] Uneven surface of the blades

158 Performance figures given by the manufacturer of an aeroplane in its POH (pilot's operating handbook) are based on measurements and calulations in one of the below listed conditions. Choose the correct alternative:

[A] density altitude 0 ft and temperature 0°C
[B] standard conditions agreed by the General Aviation Manufacturers' Association (GAMA)
[C] ICAO standard atmosphere conditions
[D] normal summer conditions in the manufacturing area

159 64 liters of 100LL weights:

[A] 55 kg
[B] 74 kg
[C] 46 kg
[D] 88 kg

160 114 fuel lbs is:

[A] 250 l
[B] 22 gal
[C] 72 kg
[D] 72 l

161 How runway slope affects on the take-off and landing distances?

[A] A downhill slope increases take-off distance but decreases landing distance.
[B] Slope does not have effects on the distances.
[C] An uphill slope increases take-off distance but decreases landing distance.
[D] An uphill slope decreases both take-off and landing distances.

162 The centre of gravity of an aeroplane is:

[A] A point through which the lift force of the wing acts
[B] In location given in the POH by the manufacturer of the aeroplane
[C] A point where the whole mass of the aeroplane can be considered concentrated
[D] The reference point for arms of the masses for balance calculations

163 If you load an aeroplane Centre of Gravity to the aft limit instead of the forward limit and fly at the same altitude and cruise power, you will notice that:

[A] Maximum range increases
[B] The cruising airspeed is lower
[C] Its stall speed increases
[D] The elevator control movements turn heavier

164 Which one of the following statements concerning the mass and balance calculation is correct?

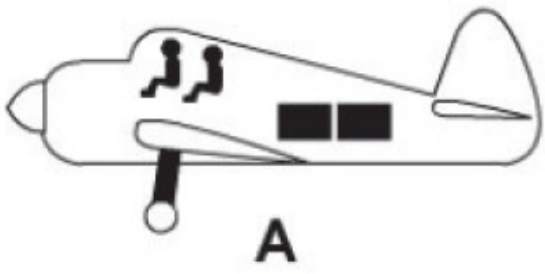
[A] Moment = force x arm
[B] Force = arm / moment
[C] Moment is the distance of the effect of the force from the GC of the aeroplane
[D] The arm and the moment of a load placed at the GC are both zero

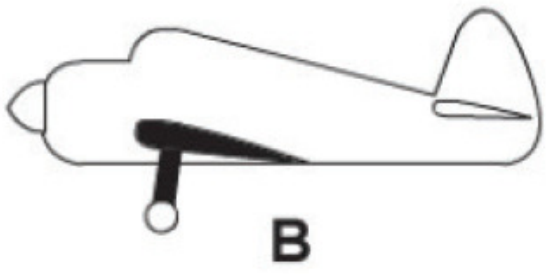
165 When starting a climbing turn from straight climb without changing the power setting your climb rate (ft/min):

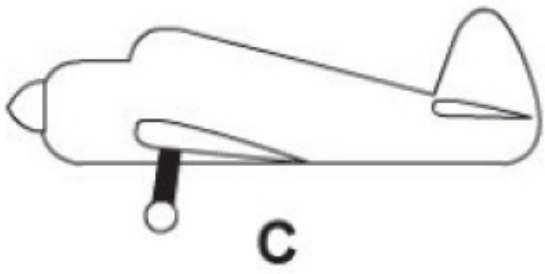
[A] Stays unchanged
[B] Increaces significantly if you fly at above 5000 ft altitude
[C] Is reduced
[D] Increases slightly

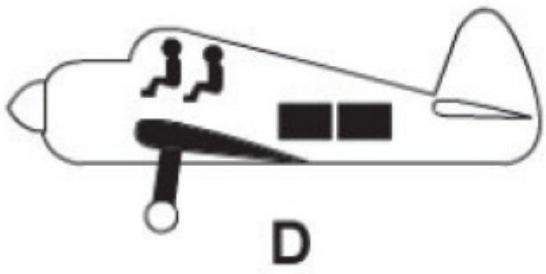
FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-01



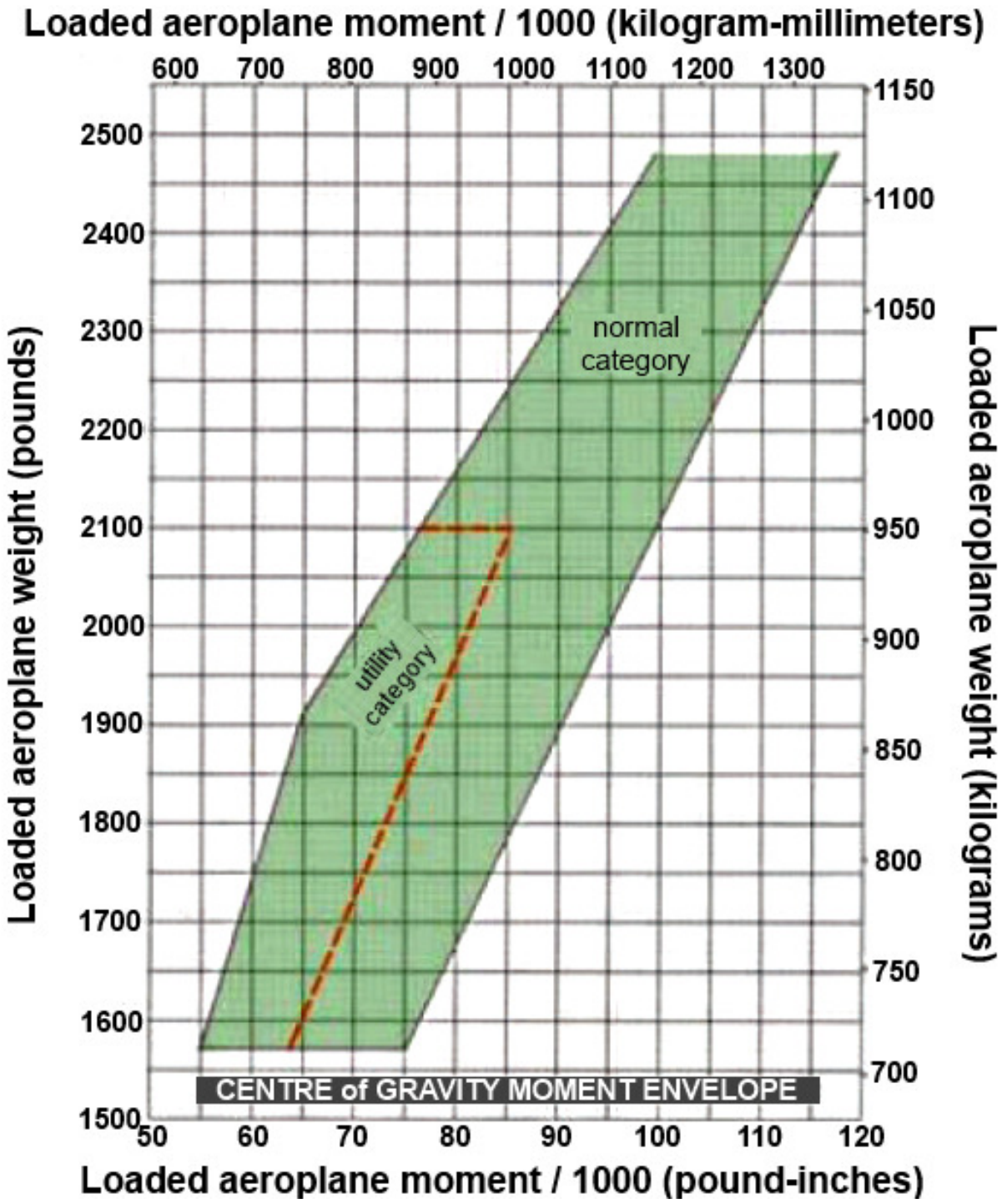






FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-02



FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-03

MAXIMUM RATE of CLIMB AT 3000 FEET

CONDITIONS

Flaps Up
Landing Gear Retracted
Full Throttle

PRESS ALT FT	CLIMB SPEED KIAS	RATE of CLIMB - FPM			
		-20°C	0°C	20°C	40°C
S.L.	79	830	770	705	640
2000	77	720	655	595	535
4000	76	645	585	525	465
6000	74	530	475	415	360
8000	72	420	365	310	250
10000	71	310	255	200	145
12000	69	200	145	....	....

FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-04

FUEL, TIME and DISTANCE TO CLIMB AT 2300 POUNDS

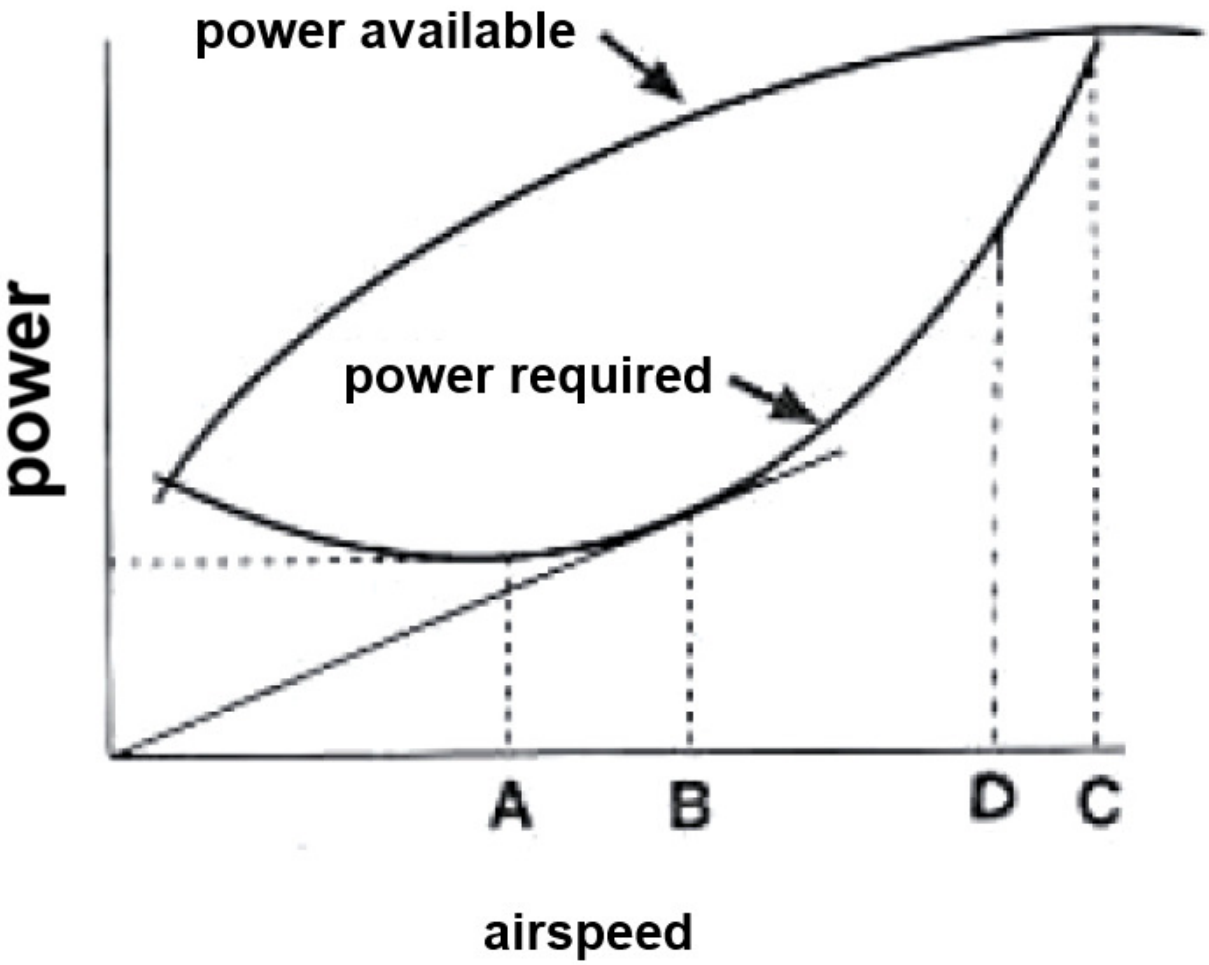
CONDITIONS

Flaps Up
Landing Gear Retracted
Full Throttle
Standard Temperature
Zero Wind

PRESS ALT FT	TEMP °c	CLIMB SPEED KIAS	RATE of CLIMB FPM	FROM SEA LEVEL		
				TIME in MINS	FUEL USED GAL	DIST NM
S.L.	15	79	720	0	0.0	0
1000	13	78	670	1	0.4	2
2000	11	77	625	3	0.7	4
3000	9	76	575	5	1.2	6
4000	7	76	560	6	1.5	8
5000	5	75	515	8	1.8	11
6000	3	74	465	10	2.1	14
7000	1	73	415	13	2.5	17
8000	-1	72	365	15	3.0	21
9000	-3	72	315	18	3.4	25
10000	-5	71	270	22	4.0	29
11000	-7	70	220	26	4.6	35
12000	-9	69	170	31	5.4	43

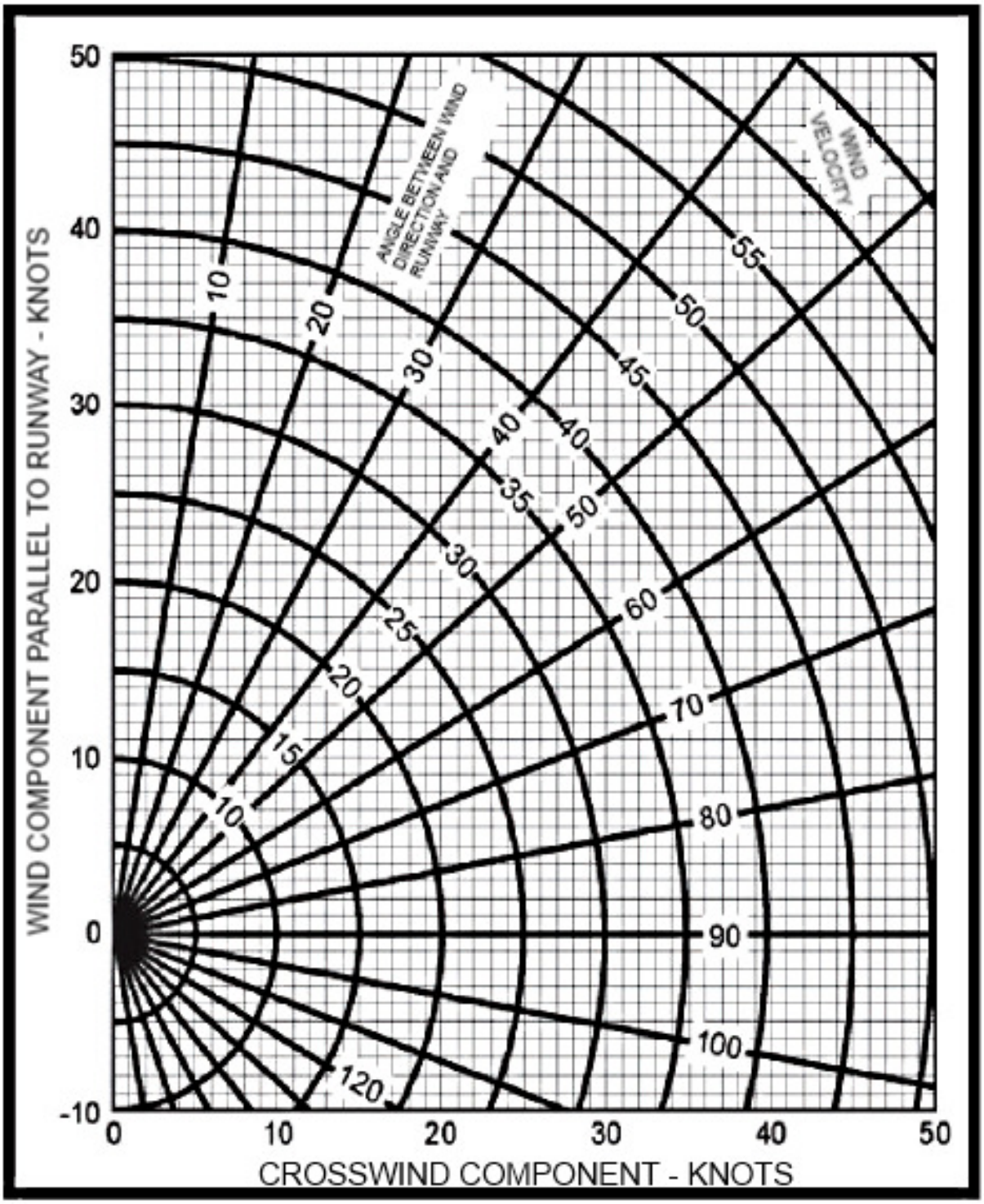
FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-05



FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-06



FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-07

CRUISE PERFORMANCE

CONDITIONS
2300 Pounds
Recommended lean mixture

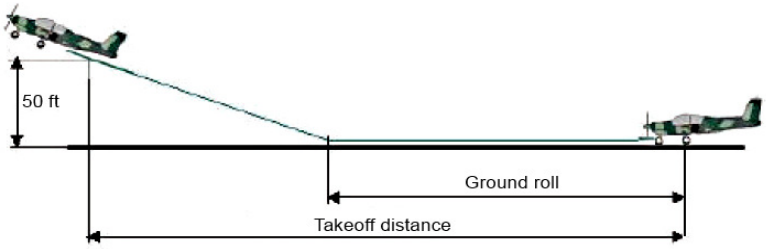
PRESSURE ALTITUDE (FT)	RPM	20°C BELOW STANDARD TEMP.			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP.		
		Power (%)	Speed (KTAS)	Fuel com. (GPA)	Power (%)	Speed (KTAS)	Fuel com. (GPA)	Power (%)	Speed (KTAS)	Fuel com. (GPA)
2000	2500	-	-	-	75	116	8.4	71	115	7.9
	2400	72	111	8.0	67	111	7.5	63	110	7.1
	2300	64	106	7.1	60	105	6.7	56	105	6.3
	2200	56	101	6.3	53	100	6.1	50	99	5.8
	2100	50	95	5.8	47	94	5.6	45	93	5.4
4000	2550	-	-	-	75	118	8.4	71	118	7.9
	2500	76	116	8.5	71	115	8.0	67	115	7.5
	2400	68	111	7.6	64	110	7.1	60	109	6.7
	2300	60	105	6.8	57	105	6.4	54	104	6.1
	2200	54	100	6.1	51	99	5.9	48	98	5.7
	2100	48	94	5.6	46	93	5.5	44	92	5.3
6000	2600	-	-	-	75	120	8.4	71	120	7.9
	2500	72	116	8.1	67	115	7.6	64	114	7.1
	2400	64	110	7.2	60	109	6.8	57	109	6.4
	2300	57	105	6.5	54	104	6.2	52	103	5.9
	2200	51	99	5.9	49	98	5.7	47	97	5.5
	2100	46	93	5.5	44	92	5.4	42	91	5.2
8000	2650	-	-	-	75	122	8.4	71	122	7.9
	2600	76	120	8.6	71	120	8.0	67	119	7.5
	2500	68	115	7.7	64	114	7.2	60	113	6.8
	2400	61	110	6.9	58	109	6.5	55	108	6.2
	2300	55	104	6.2	52	103	6.0	50	102	5.8
	2200	49	98	5.7	47	97	3.3	43	96	5.4
10 000	2650	76	122	8.5	71	122	8.0	67	121	7.5
	2600	72	120	8.1	68	119	7.6	64	118	7.1
	2500	65	114	7.3	61	114	6.8	58	112	6.5
	2400	58	109	6.5	55	108	6.2	52	107	6.0
	2300	52	103	6.0	50	102	3.8	48	101	5.6
	2200	47	97	5.6	45	96	5.4	44	95	5.3
12 000	2600	68	119	7.7	64	118	7.2	61	117	6.8
	2500	62	114	6.9	58	113	6.5	55	111	6.2
	2400	56	108	6.3	53	107	6.0	51	106	5.8
	2300	50	102	5.8	48	101	5.6	46	100	5.5
	2200	46	96	5.5	44	95	5.4	43	94	5.3

FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-08

TAKEOFF PERFORMANCE
Short field

CONDITIONS:
Flaps up
Full throttle before brake release
Paved, Level Dry Runway
Zero wind



NOTE:

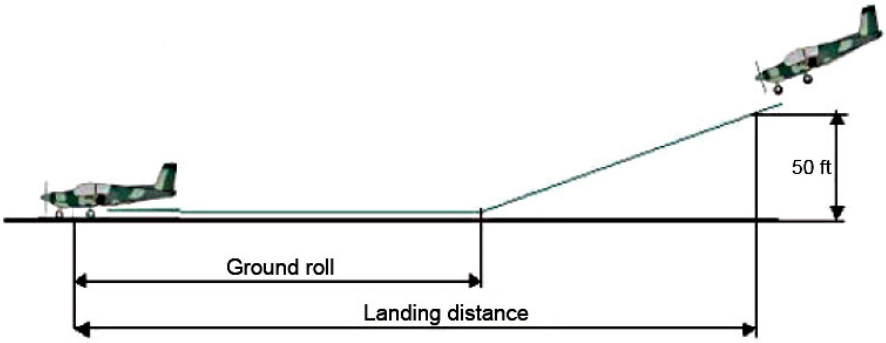
1. Short field technique.
2. Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum power in a full throttle, static run up.
3. Decrease values from the table by 10% for each 9 knots headwind. For operation with tailwind up to 10 knots, increase values by 10% for each 2 knots.
4. For operation on a dry, grass runway, increase values by 15% of the >>ground roll<< figure.

Weight (LBS)	Speed (KIAS)		Press ALT (FT)	0 °C		10 °C		20 °C		30 °C		40 °C	
	Lift off	At 50 ft		Ground roll	Takeoff distance	Ground roll	Takeoff distance	Ground roll	Takeoff distance	Ground roll	Takeoff distance	Ground roll	Takeoff distance
2300	52	59	S.L.	720	1300	775	1390	835	1490	895	1590	960	1700
			1000	790	1420	850	1525	915	1630	980	1745	1050	1865
			2000	865	1555	930	1670	1000	1790	1075	1915	1155	2055
			3000	950	1710	1025	1835	1100	1970	1185	2115	1210	2265
			4000	1045	1880	1125	2025	1210	2175	1300	2335	1400	2510
			5000	1150	2075	1240	2240	1335	2410	1435	2595	1540	2795
			6000	1265	2305	1365	2485	1475	2680	1585	2895	1705	3125
			7000	1400	2565	1510	2770	1630	3000	1755	3245	1890	3515
			8000	1550	2870	1675	3110	1805	3375	1945	3670	2095	3990
2100	50	56	S.L.	585	1070	630	1140	680	1220	725	1300	780	1390
			1000	640	1165	690	1245	740	1330	795	1420	850	1520
			2000	700	1270	755	1360	810	1455	870	1555	935	1665
			3000	770	1390	830	1490	890	1595	955	1710	1025	1830
			4000	845	1525	910	1640	980	1755	1050	1880	1130	2015
			5000	930	1680	1000	1805	1075	1935	1155	2075	1240	2230
			6000	1025	1850	1100	1990	1185	2140	1275	2300	1370	2475
			7000	1130	2050	1215	2210	1310	2380	1410	2560	1515	2755
			8000	1245	2275	1345	2460	1450	2655	1560	2865	1680	3090
1900	47	54	S.L.	470	865	505	920	540	985	580	1045	620	1115
			1000	515	940	550	1005	590	1070	635	1140	680	1215
			2000	560	1025	605	1095	645	1170	695	1245	745	1330
			3000	615	1115	660	1195	710	1275	760	1365	815	1455
			4000	670	1220	725	1305	780	1400	835	1495	895	1595
			5000	740	1340	795	1435	855	1535	920	1640	985	1755
			6000	810	1470	875	1575	940	1690	1010	1810	1085	1940
			7000	895	1620	965	1740	1035	1865	1115	2000	1195	2145
			8000	985	1790	1065	1925	1145	2065	1230	2220	1320	2385

FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-09
LANDING PERFORMANCE
Short field

CONDITIONS:
Flaps 40°
Power off
Paved
Level Dry Runway
Zero wind



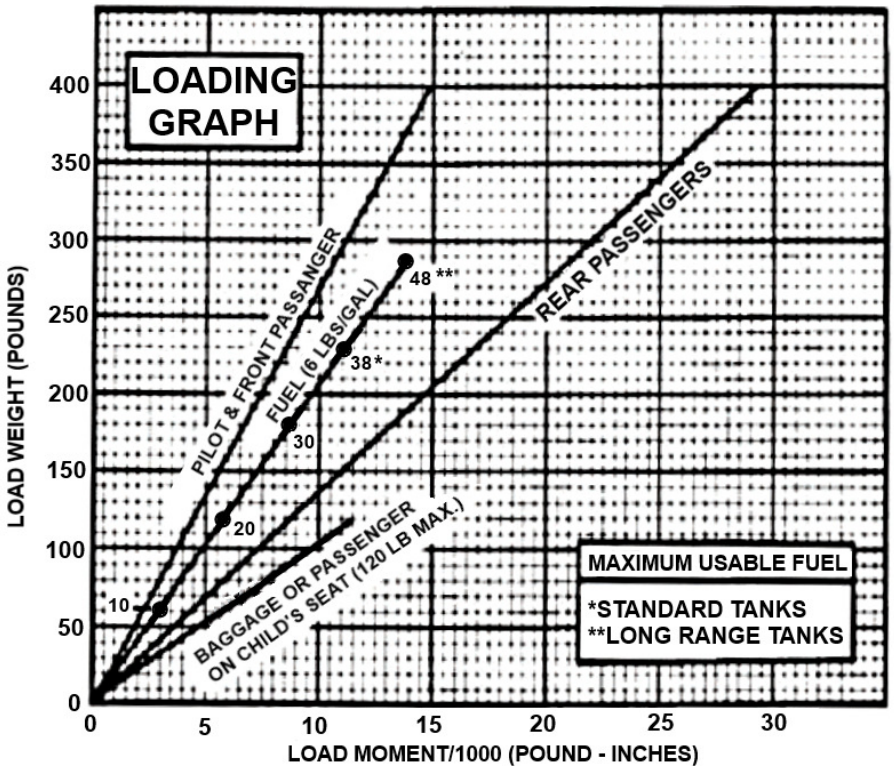
NOTE:

1. Short field technique.
2. Decrease values from the table by 10% for each 9 knots headwind. For operation with tailwind up to 10 knots, increase values by 10% for each 2 knots.
3. For operation on a dry, grass runway, increase values by 45% of the >>ground roll<< figure.

Weight (LBS)	Speed at 50 ft (KIAS)	Press ALT (FT)	0 °C		10 °C		20 °C		30 °C		40 °C	
			Ground roll	Landing dist.	Ground roll	Landing dist.	Ground roll	Landing dist.	Ground roll	Landing dist.	Ground roll	Landing dist.
2300	60	SL	495	1205	510	1235	530	1265	545	1295	565	1330
		1000	510	1235	530	1265	550	1300	565	1330	585	1365
		2000	530	1265	550	1300	570	1335	590	1370	610	1405
		3000	550	1300	570	1335	590	1370	610	1405	630	1440
		4000	570	1335	590	1370	615	1410	635	1445	655	1480
		5000	590	1370	615	1415	635	1450	655	1485	680	1525
		6000	615	1415	640	1455	660	1490	685	1535	705	1570
		7000	640	1455	660	1495	685	1535	710	1575	730	1615
		8000	665	1500	690	1540	710	1580	735	1620	760	1665

FLIGHT PERFORMANCE AND PLANNING

Appendix
LAPL/PPL 030-10



NOTES: (1) Lines representing adjustable seats show the pilot or passenger center of gravity on adjustable seats positioned for an average occupant. Refer to the Loading Arrangements diagram for forward and aft limits of occupant e.g. range. (2) Engine Oil: 8 Qts. = 15 Lbs. at -0.2 Moment/1000.