

Workbook

PRIVATE PILOT LICENCE AEROPLANE

TRAINING AND EXAMINATION WORKBOOK

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online practice exams



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Comments and Feedback

At Ground Effect Aviation we are always looking for innovative ways to improve our products and cater to the needs of the aviation industry. Your valuable comments, questions and feedback are most welcome, please contact us:

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Important Information

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Operational Restrictions

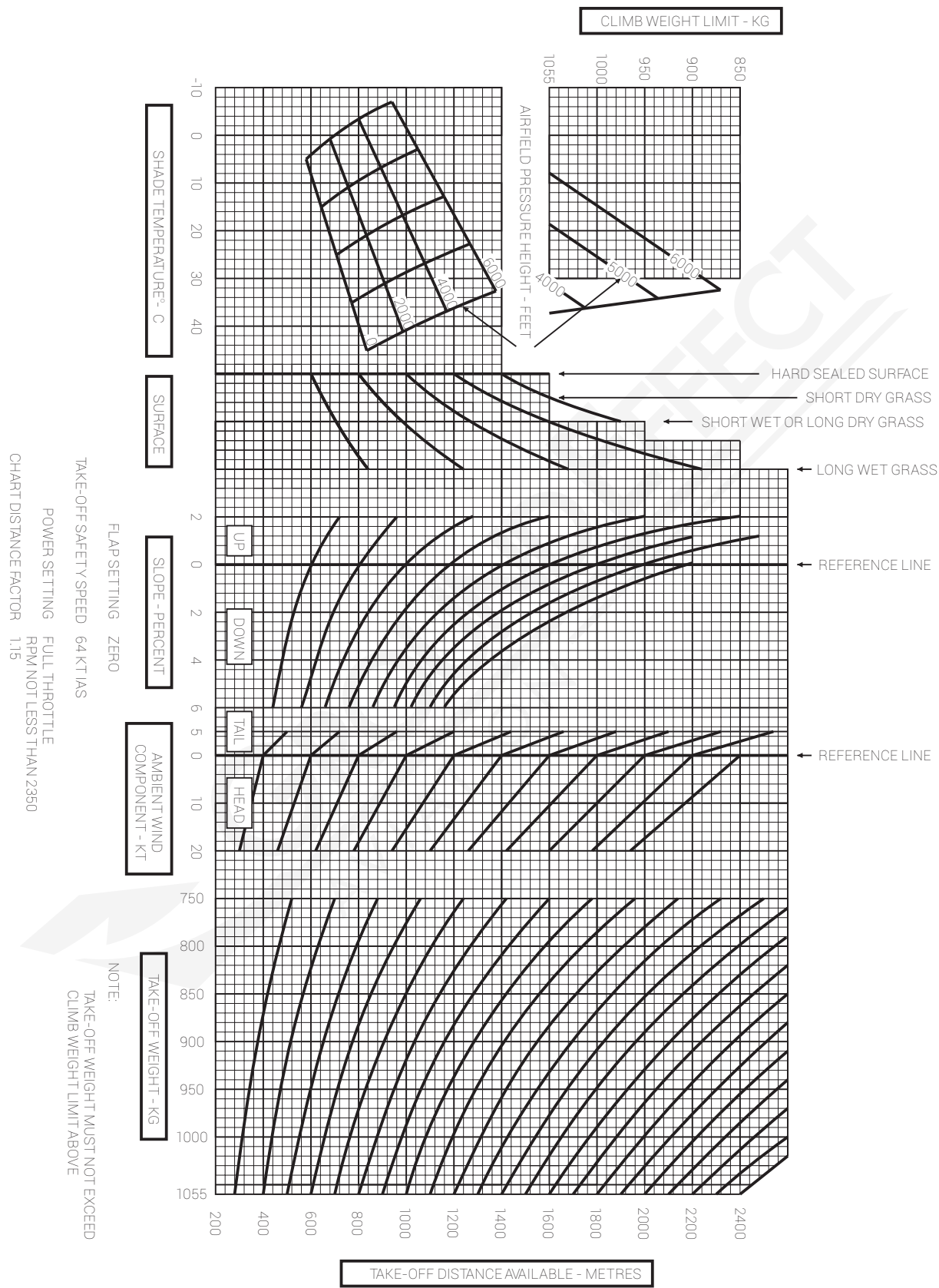
Some of the examination questions are subject to interpretation and don't necessarily comply with every individual flying school's daily operations. The following assumptions will be made in each examination:

- All fuel calculations shall be done in accordance with CAAP 234-1(1)
- Selection of and operation into landing areas other than licenced aerodromes, shall be in accordance with CAAP 92-1(1)
- All flights shall plan to land 10 minutes before last light, unless otherwise stated
- Candidates can assume that all aircraft equipment is serviceable
- All air legislation, information and extracts are current as of the May 2014 updates, the use of documents outside of this range may result in incorrect answers

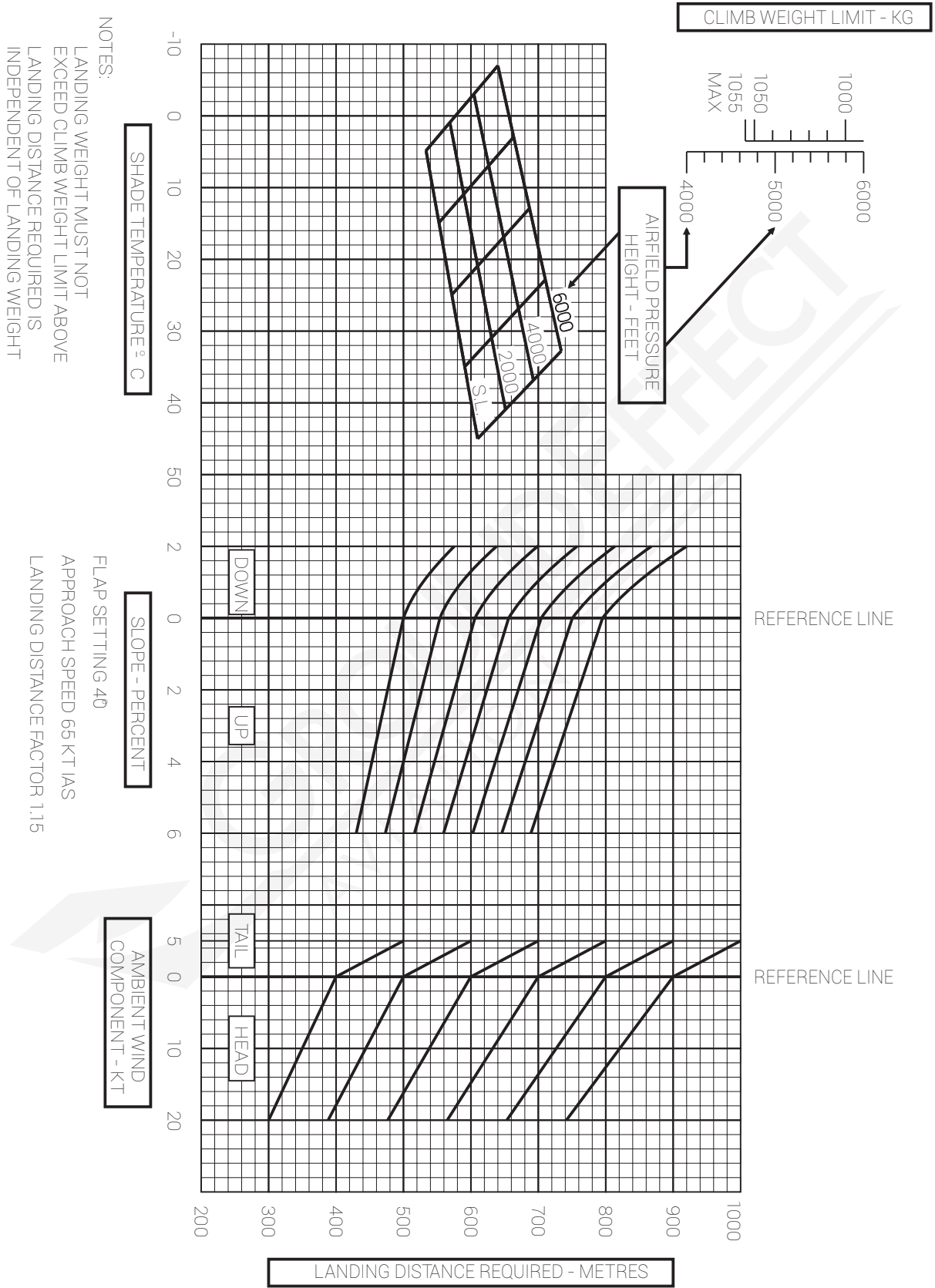
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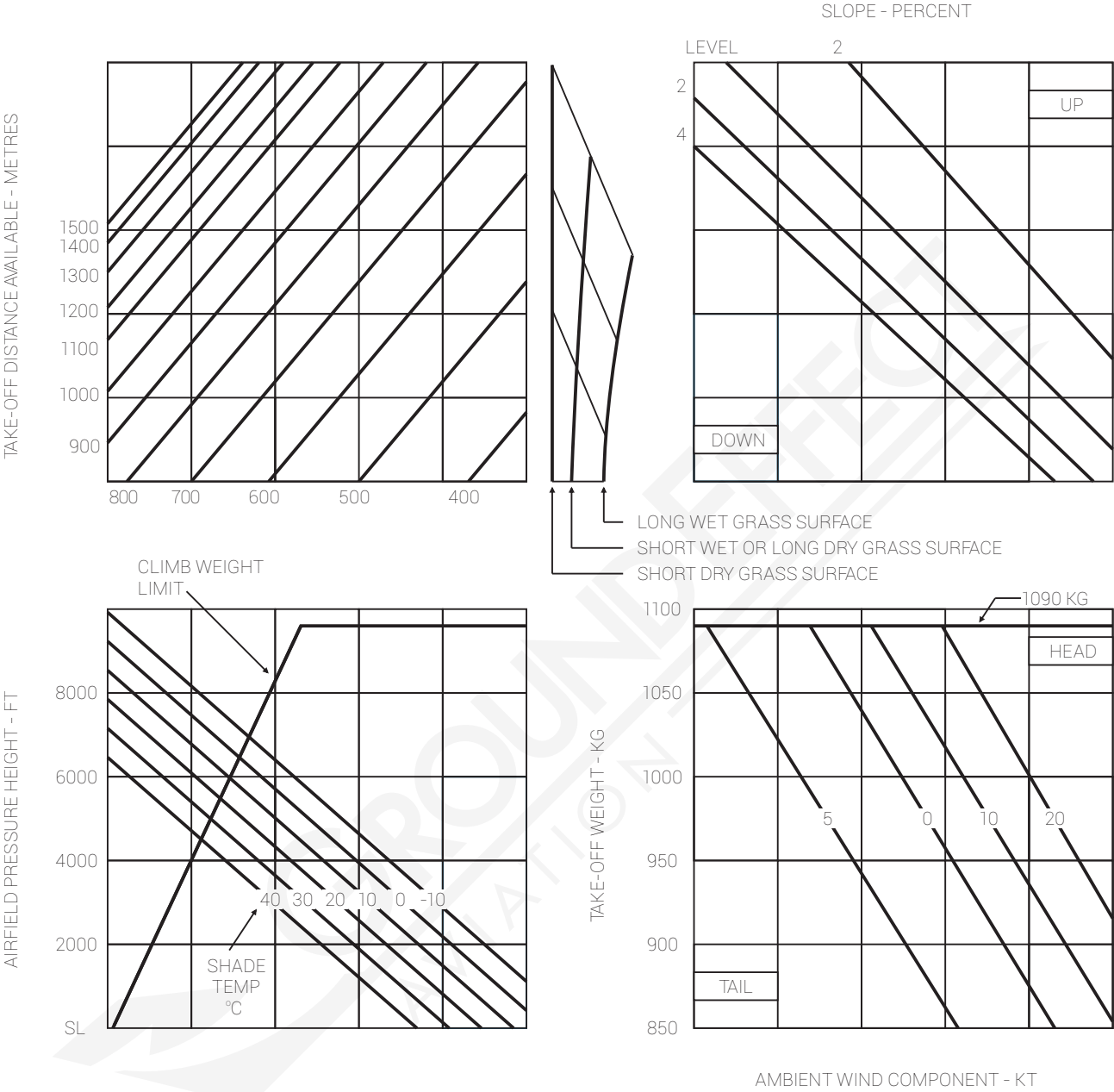
LINEAR TAKE-OFF PERFORMANCE CHART



LINEAR LANDING PERFORMANCE CHART



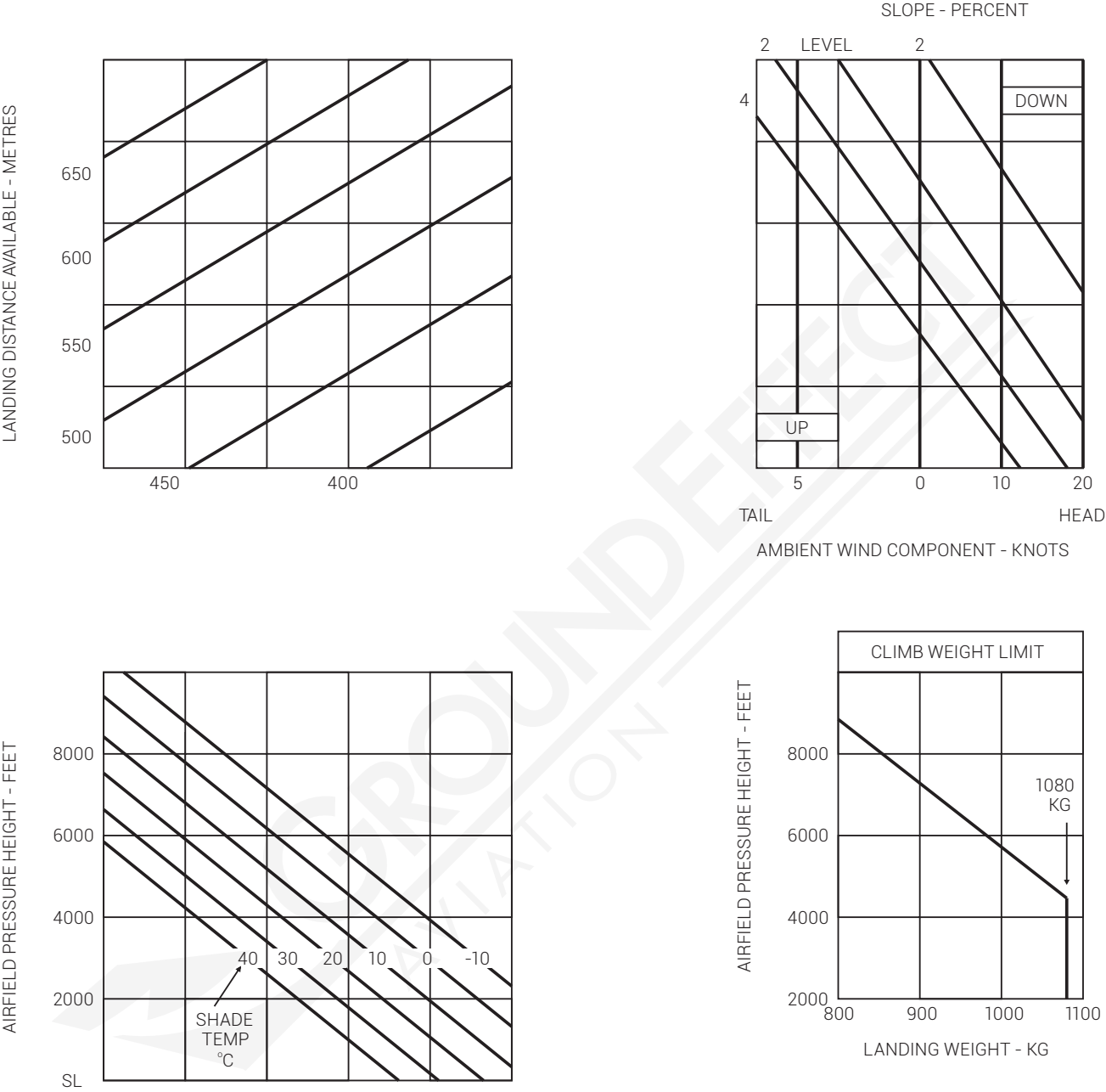
BOXED TAKE-OFF PERFORMANCE CHART



- NOTES:
- (1) THE GROSS WEIGHT AT TAKE-OFF SHALL NOT EXCEED THE LESSER OF (A) AND (B)
 - (2) MAXIMUM TAKE-OFF WEIGHT = 1090 KG

POWER TO BE USED	FULL THROTTLE
FLAP SETTING	10 DEGREES
TAKE-OFF SAFETY SPEED	60 KT IAS
TAKE-OFF DISTANCE FACTOR	1.15

BOXED LANDING PERFORMANCE CHART



- NOTES:
- (1) THE GROSS WEIGHT AT TAKE-OFF SHALL NOT EXCEED (A)
 - (2) LANDING WEIGHT DOES NOT VARY SIGNIFICANTLY WITH WEIGHT

FLAP SETTING	30 DEGREES
APPROACH SPEED	58 KT IAS
LANDING DISTANCE FACTOR	1.15

TRAINING AND EXAMINATION WORKBOOK

Loading System Alpha
Configuration: 6/7 Seats

INSTRUCTIONS FOR USE OF LOADING SYSTEM

- 1. Obtain Basic Empty Weight and Index Units from current section of 6.2 of Flight Manual.
- 2. Mark Basic Empty Weight index Units on top scale. Enter Basic Empty Weight at top of right-hand column.
- 3. Enter weights of load items required for flight in appropriate squares of right-hand column. Maximum weights for load items are indicated on Index Unit scales.
- 4. Total weights in right-hand column to obtain Zero Fuel Weight and Take-off Weight. **
- 5. Draw horizontal lines on CG envelope graph corresponding to Zero Fuel Weight and Take- Off Weight.
- 6. Draw a line vertically down from point marked on Basic Empty Weight Index Units scale to first load item scale.
* Move to the left or right on this load item index scale as per arrow directions, and mark point as appropriate to the load indicated in the right hand column.
(e.g. 154 kg load @ 77 kg/div. = 2 div.).
- 7. Draw a line vertically down from the point marked on the first load item index scale to the second load item index scale and continue as per * above. Continue down the scales to "Rear Baggage". Draw a line vertically from the "Rear Baggage" point down to intersect the Zero Fuel Weight line and Take-Off Weight line previously marked on the CG envelope graph.
- 8. The two intersection points as per 7, above must not exceed the boundaries of the CG envelope graph. If they do, re-organise the load in the aircraft and start again with steps 3 to 7.

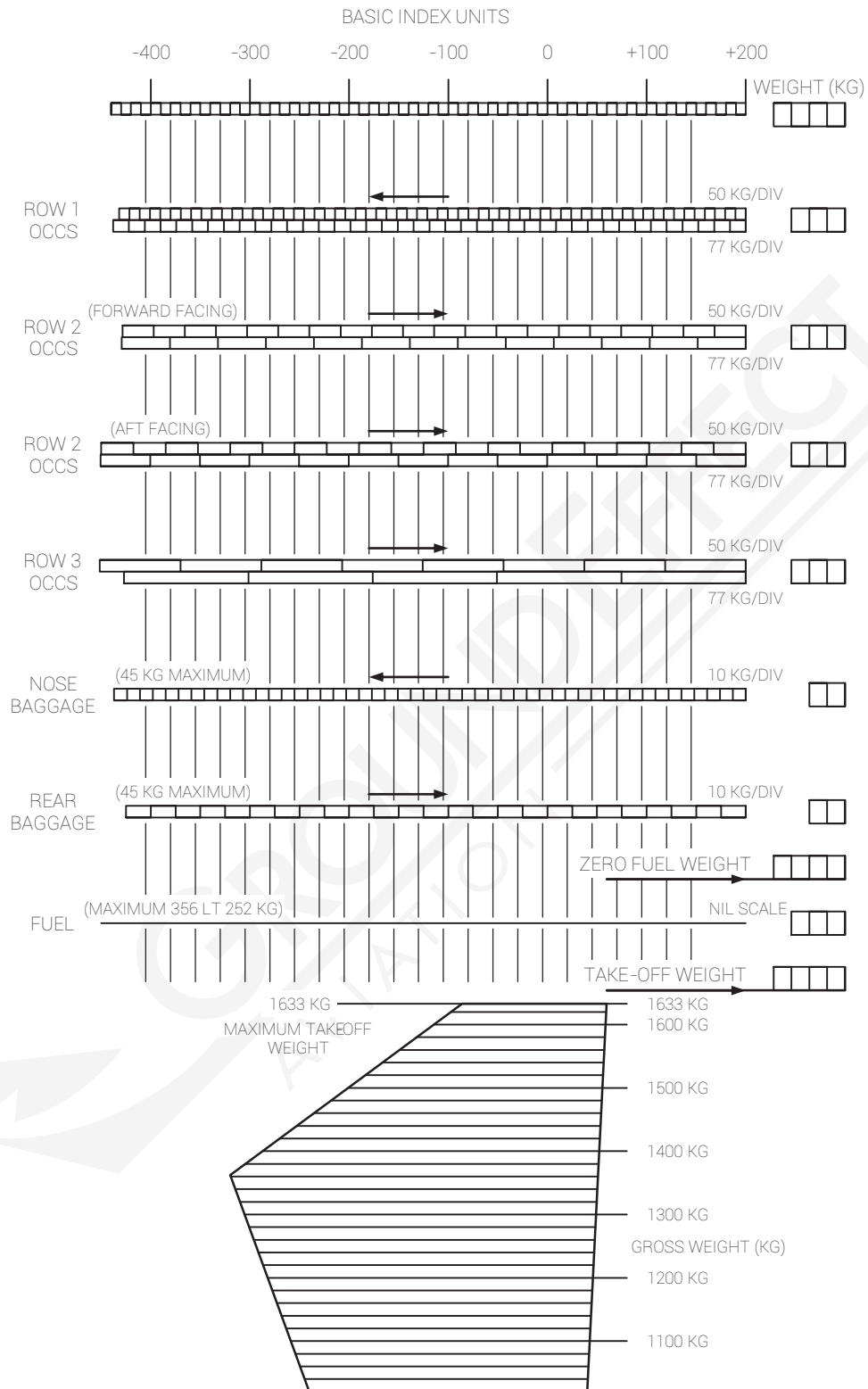
**** DO NOT EXCEED MAXIMUM TAKE-OFF WEIGHT AS SHOWN ON CG ENVELOPE DIAGRAM OF THIS LOADING SYSTEM.**

EXAMPLE:

Basic Empty Weight	1050 kg
Empty Index Units	-260
Row 1	150 kg (2 persons)
Row 2 (forward facing)	160 kg (2 persons)
Row 3	120 kg (2 persons)
Nose baggage	40 kg ----- Zero Fuel Weight = 1520 kg
Rear baggage Fuel	Nil
Fuel	113 kg ----- Take-Off Weight = 1633 kg

Note: Basic Empty Weight includes unusable fuel and full oil.

LOADING SYSTEM ALPHA



TRAINING AND EXAMINATION WORKBOOK

Loading System Bravo Configuration: 4 Seats

INSTRUCTIONS FOR USE OF LOADING SYSTEM

To check the loading of the aircraft before take-off, calculate the total weight and total moments as shown in the example below.

Plot the total weight and moment on the "Centre of Gravity Envelope" chart, and if the intersection point lies within the envelope, the loading is acceptable.

AIRCRAFT LIMITATIONS

Maximum Take-Off Weight	
Normal category:	1000 kg / 2200 lb
Utility category:	841 kg / 1850 lb
Maximum baggage compartment	53 kg / 120 lb

NOTES:

1. The aircraft is fitted with standard tanks (37 US gallons @ 6 lb/gal)
2. Empty weight includes unusable fuel and undrainable oil
3. Obtain Moment / 1000 inch pounds from the loading graph

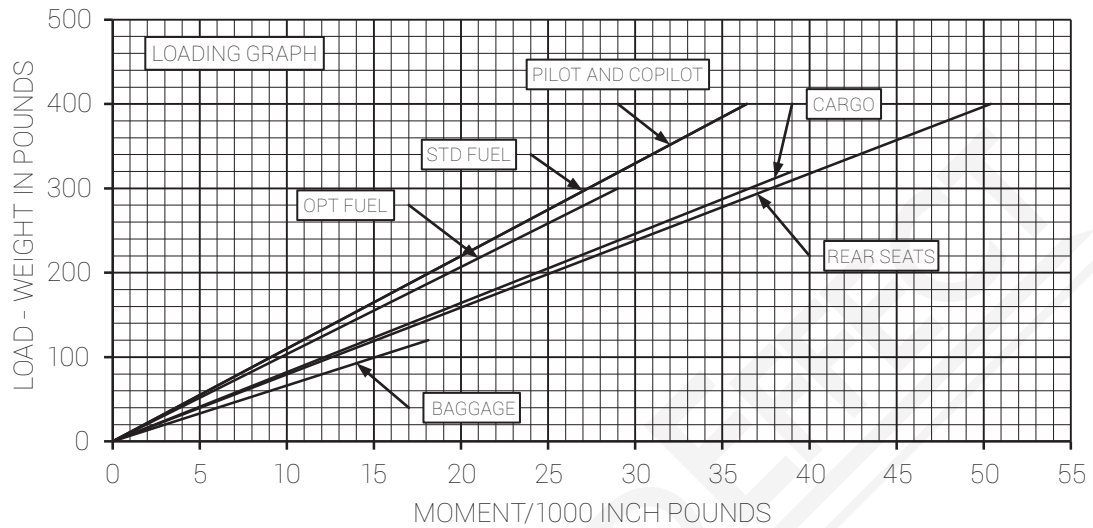
EXAMPLE:

ITEM	WEIGHT (lb)	ARM (in)	MOMENT/1000 (in lb)
Empty weight	1260	80	100.80
Oil	15	32	0.48
Fuel (141 litres)	222	91	20.20
Pilot & Co-Pilot	320	91	29.19
Rear seat passengers	350	126	44.10
Baggage	25	151	3.78
Take-Off Weight	2192		198.30

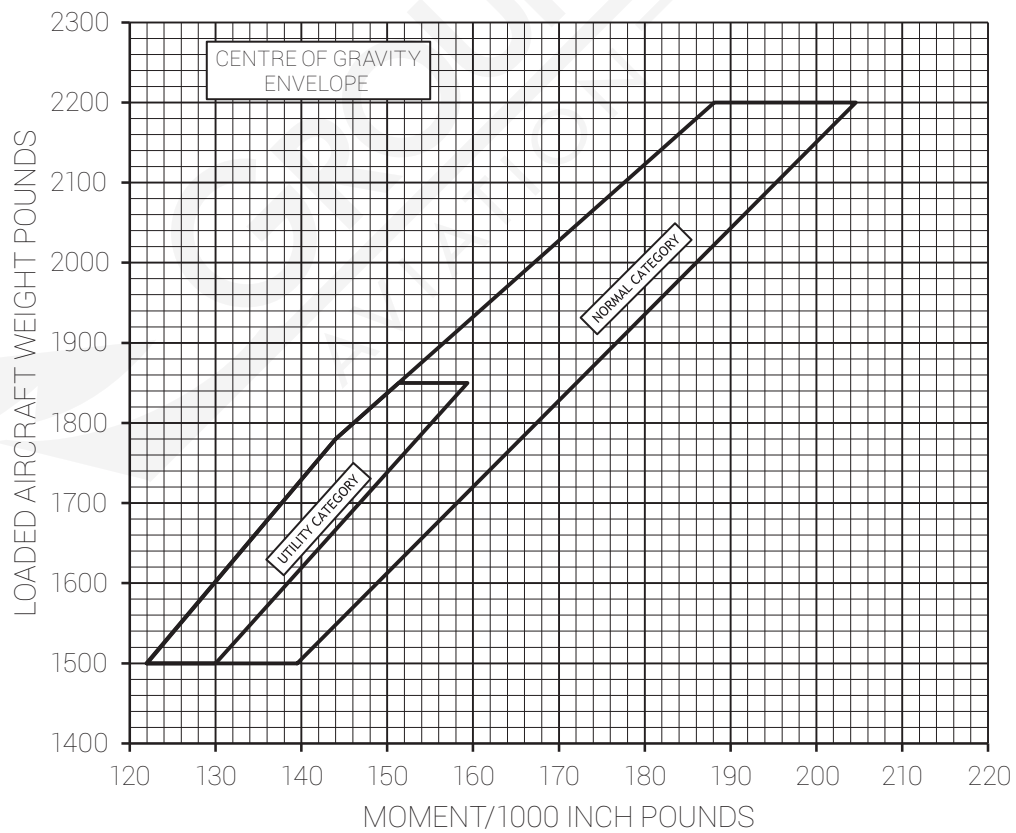
Note: Check CG is within the envelope

LOADING SYSTEM BRAVO

Add weight of items to be carried to aeroplane licenced empty weight. Add moment/1000 of items to be carried to total aeroplane moment/1000. Use Centre of Gravity Envelope to determine acceptability.



LOADING GRAPH



CENTRE OF GRAVITY ENVELOPE

TRAINING AND EXAMINATION WORKBOOK

Loading System Charlie Configuration: 4 Seats

INSTRUCTIONS FOR USE OF LOADING SYSTEM

To check the loading of the aircraft before take-off, carry out a summation of weight and index units as shown in the example below. Check the centre of gravity of the aircraft at Zero Fuel Weight and Take- Off Weight by use of the formula:

$$\text{CG (mm aft of datum)} = (\text{Index unit} \times 100) \div \text{Weight}$$

AIRCRAFT LIMITATIONS

Maximum Take-Off Weight	
Normal category:	1115 kg
Utility category:	925 kg
Maximum baggage compartment	122 kg

NOTES:

1. Aircraft empty weight includes unusable fuel and undrainable oil
2. All arms are in mm aft of datum
3. 1 index unit = 100 kg mm

EXAMPLE:

Aircraft empty weight	687	19,522
Full oil	7	86
1 pilot + 1 passenger (Row 1)	140	3,850
2 passengers (Row 2)	160	5,760
Baggage	20	842
Zero Fuel Weight	1,014	30,060
Fuel 140 litres	99	2,920
Take-Off Weight	1,113	32,980

CG CHECK:

- | | | | |
|------------------------|-------------------------|-----------|----|
| 1. At Zero Fuel Weight | = (30,060 x 100) ÷ 1014 | = 2965 mm | OK |
| 2. At Take-Off Weight | = (32,980 x 100) ÷ 1113 | = 2963 mm | OK |

TRAINING AND EXAMINATION WORKBOOK

Loading System Charlie

INDEX UNITS

FUEL ARM: 2950

lt	kg	IU
20	14	413
40	28	826
60	43	1268
80	57	1682
100	71	2095
120	85	2507
140	99	2920
160	114	3363
180	129	3806
200	142	4189
216	153	4513

BAGGAGE ARM: 4210

kg	IU
10	421
20	842
30	1263
40	1684
60	2526
70	2947
80	3368
90	6789
10	4210
110	4631
122	5136

OCCUPANTS

ROW 1 ARM: 2750

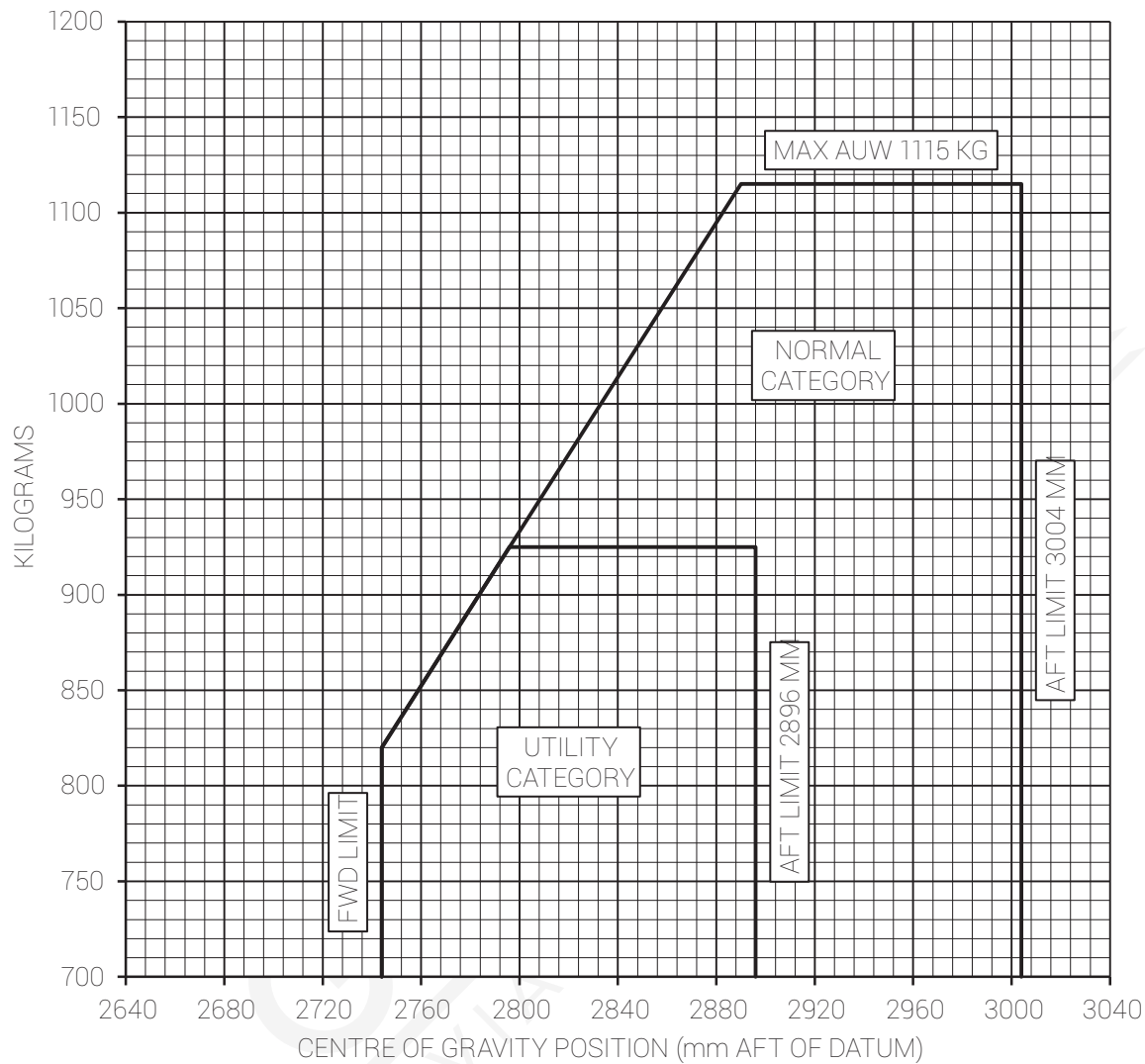
ROW 2 ARM: 3600

kg	IU	IU
40	1,100	1,440
45	1,237	1,620
50	1,375	1,800
55	1,512	1,980
60	1,650	2,160
65	1,786	2,340
70	1,925	2,520
75	2,063	2,700
80	2,200	2,880
85	2,338	3,060
90	2,475	3,240

OIL ARM: 1230

US qt	lt	kg	IU
6	5.7	5.0	62
7	6.6	6.0	74
8	7.6	7.0	86

LOADING SYSTEM CHARLIE



ALLOWABLE CENTRE OF GRAVITY ENVELOPE

CONVERSION FACTORS

1 inch	= 25.4 mm	
1 foot	= 0.305 m	
1 pound	= 0.454 kg	
1 imperial gal	= 1.201 US gal	= 4.546 lt
AVGAS specific gravity	= 0.71	

Lined area for notes, featuring horizontal ruling lines and a diagonal watermark reading "GROUND EFFECT AVIATION".

NAVIGATION DATA

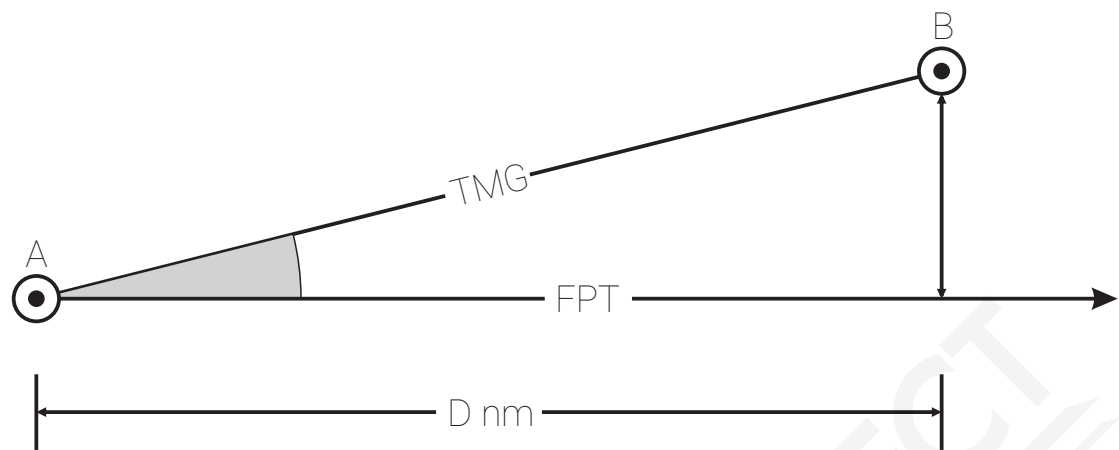


Figure 1

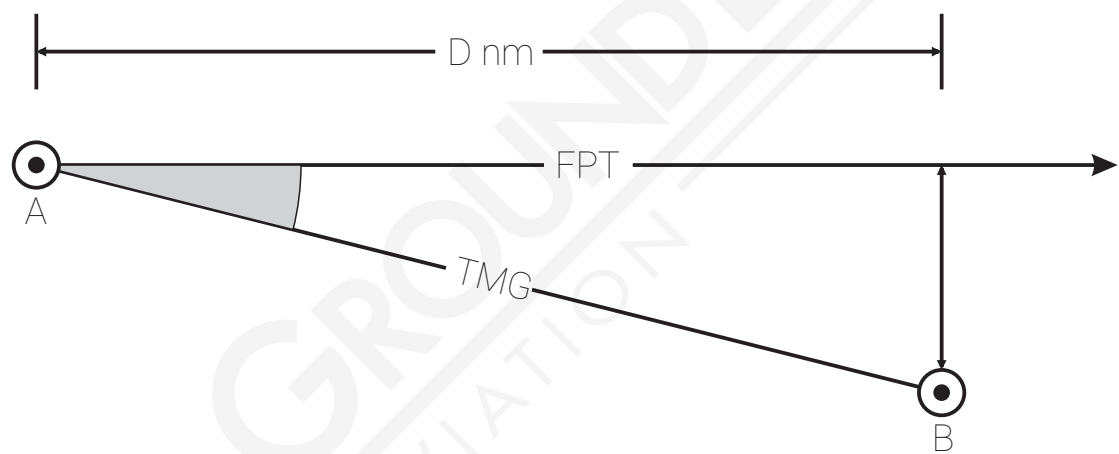


Figure 2

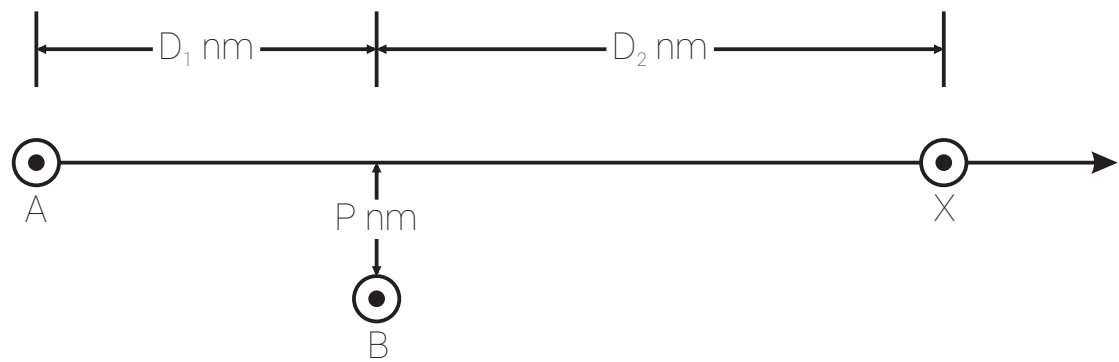


Figure 3

NAVIGATION DATA

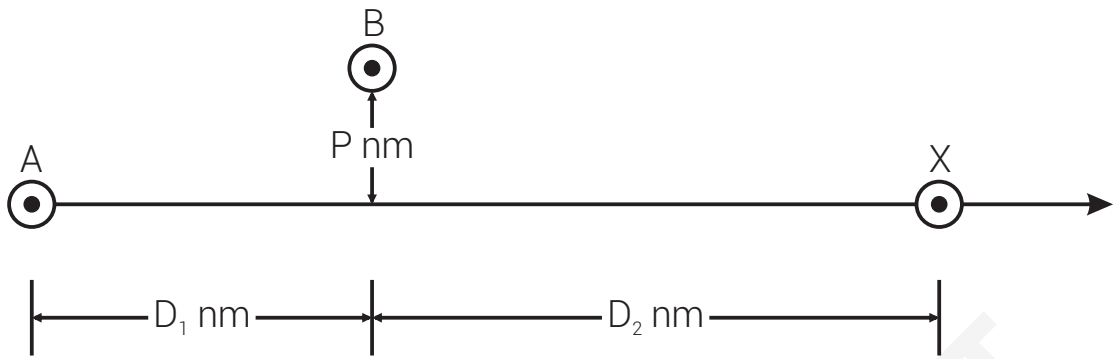


Figure 4

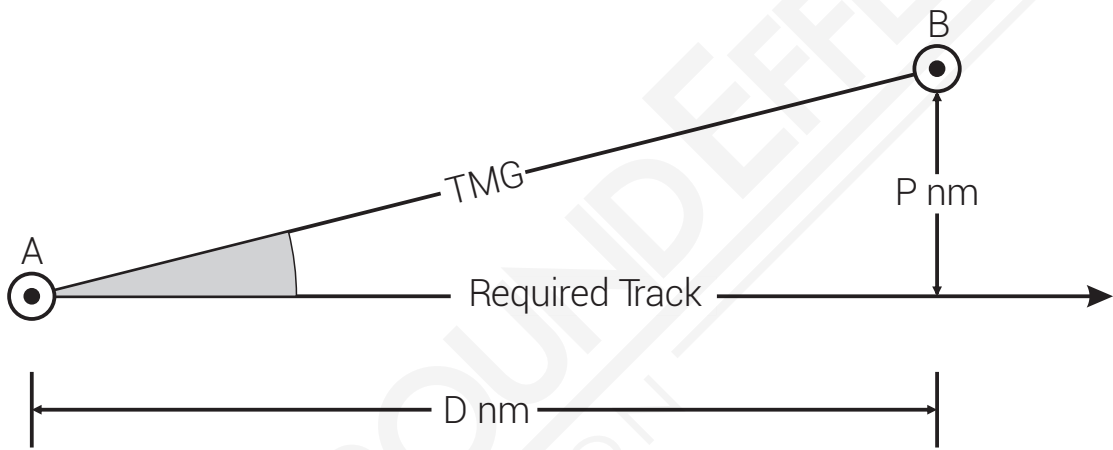


Figure 5

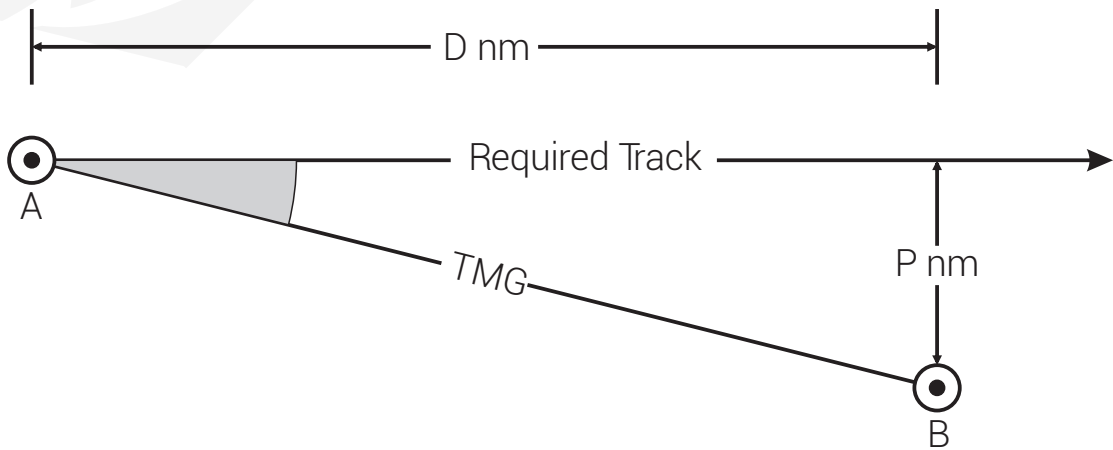


Figure 6

NAVIGATION DATA

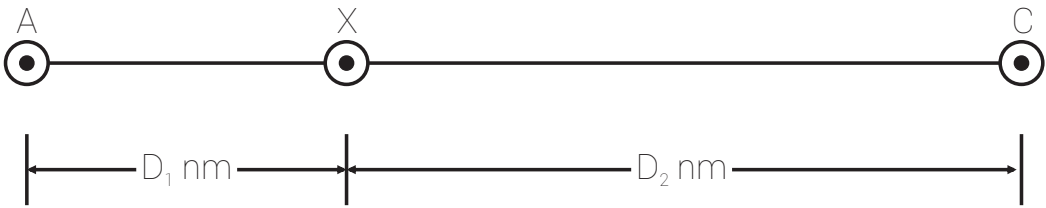


Figure 7



Figure 8

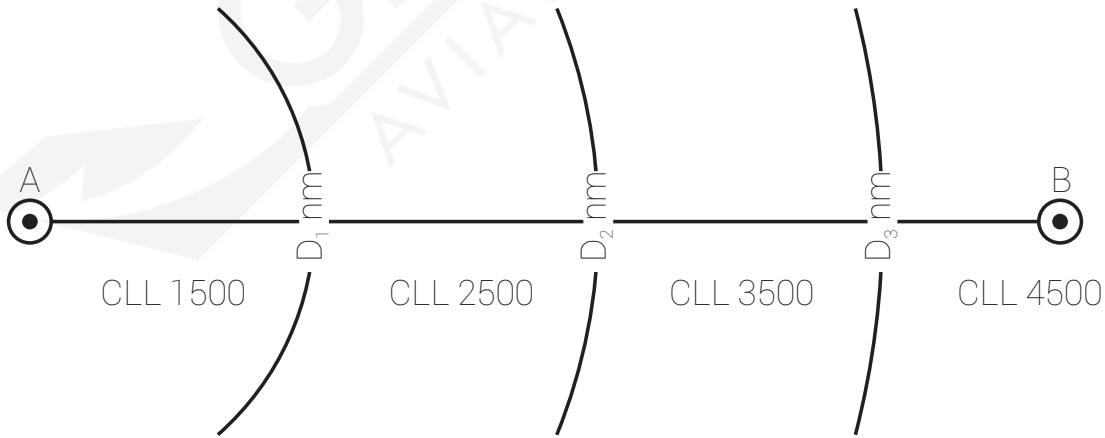
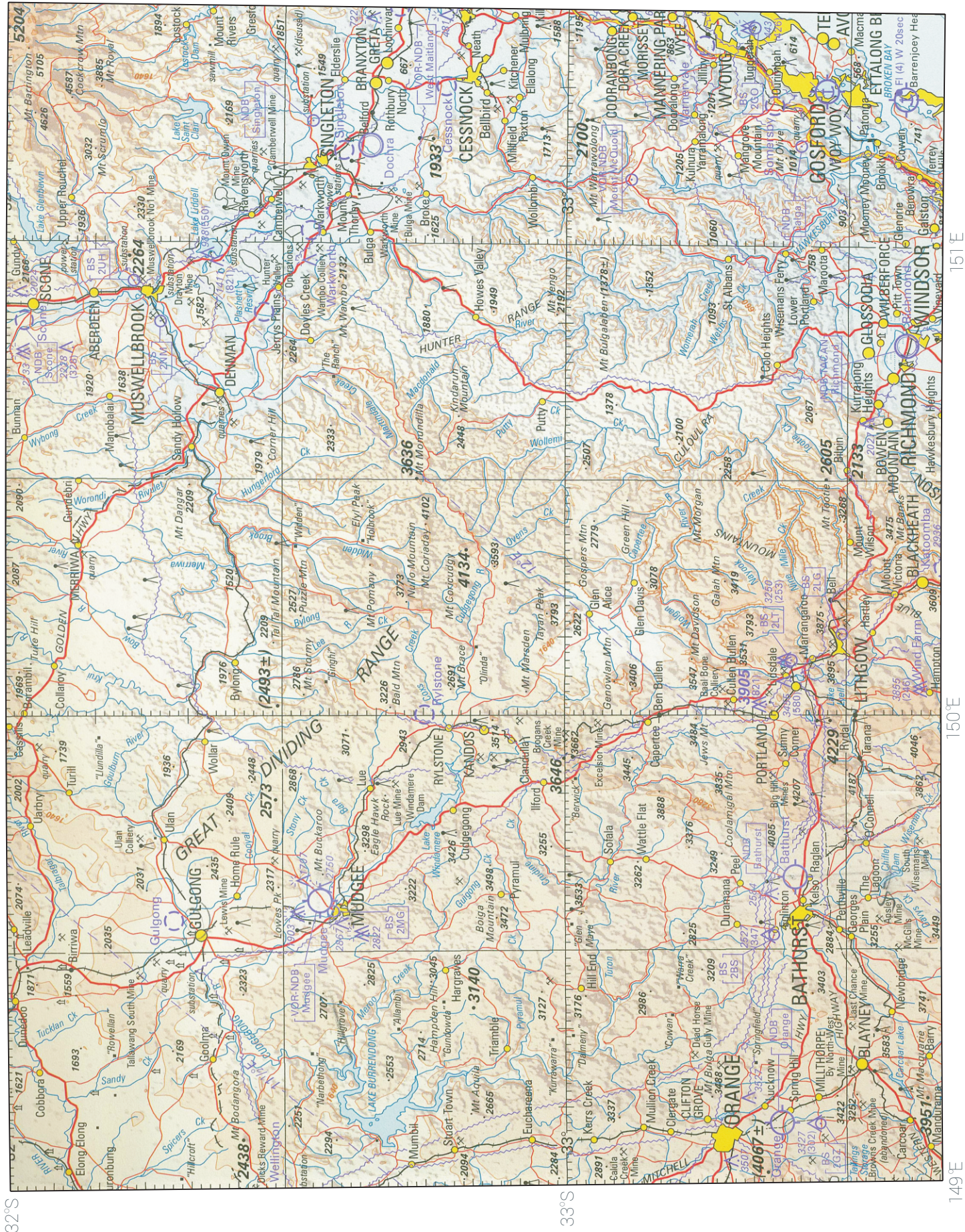


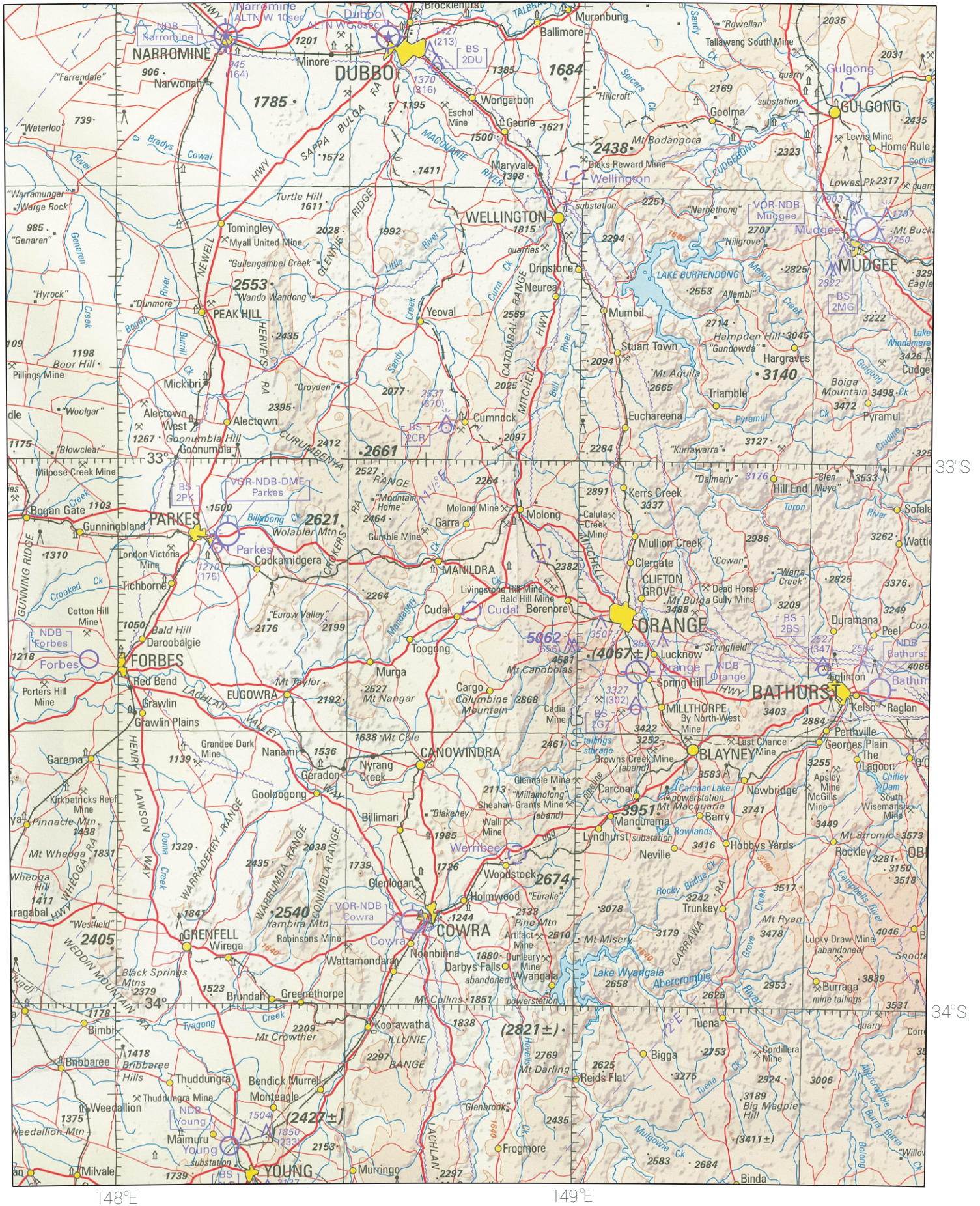
Figure 9

Lined area for notes, featuring horizontal ruling lines and a diagonal watermark reading "GROUND EFFECT AVIATION".

SYDNEY WAC (3456) EXTRACT



CANBERRA WAC (3457) EXTRACT



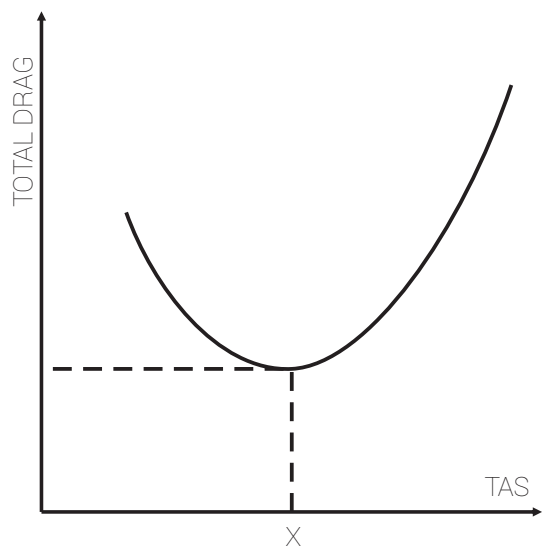


Figure 1

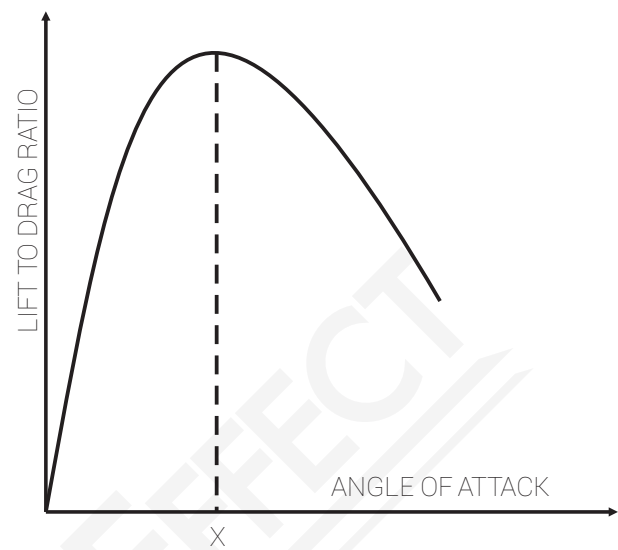


Figure 2

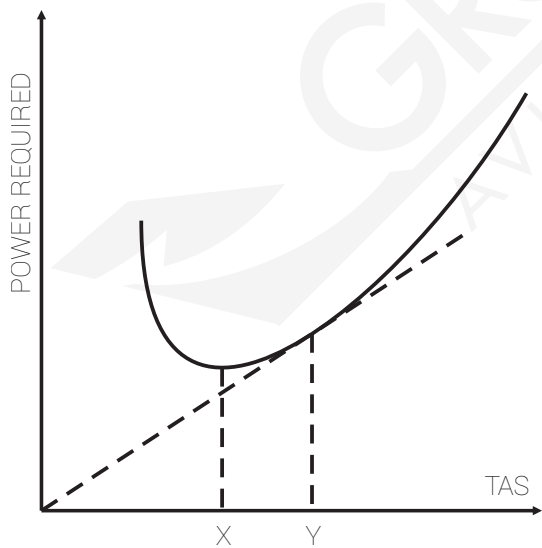


Figure 3

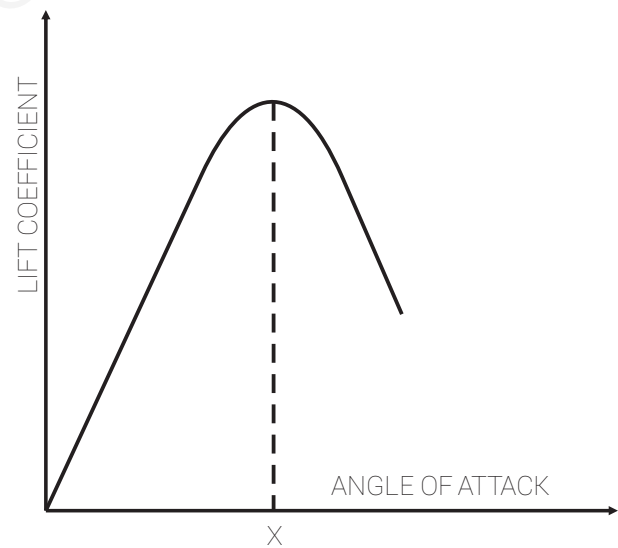


Figure 4

Lined area for notes, featuring horizontal ruling lines and a diagonal watermark reading "GROUND EFFECT AVIATION".

METEOROLOGY SYNOPTIC CHARTS

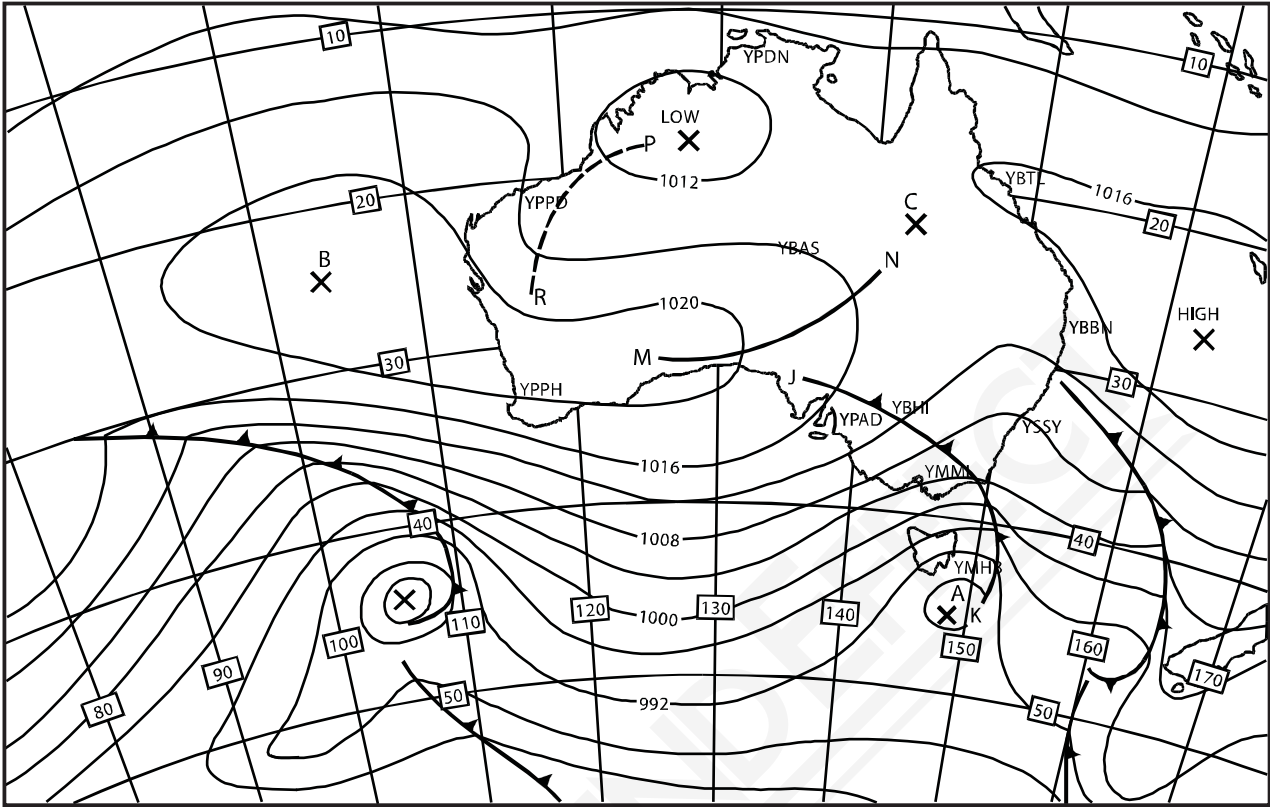


Figure 1

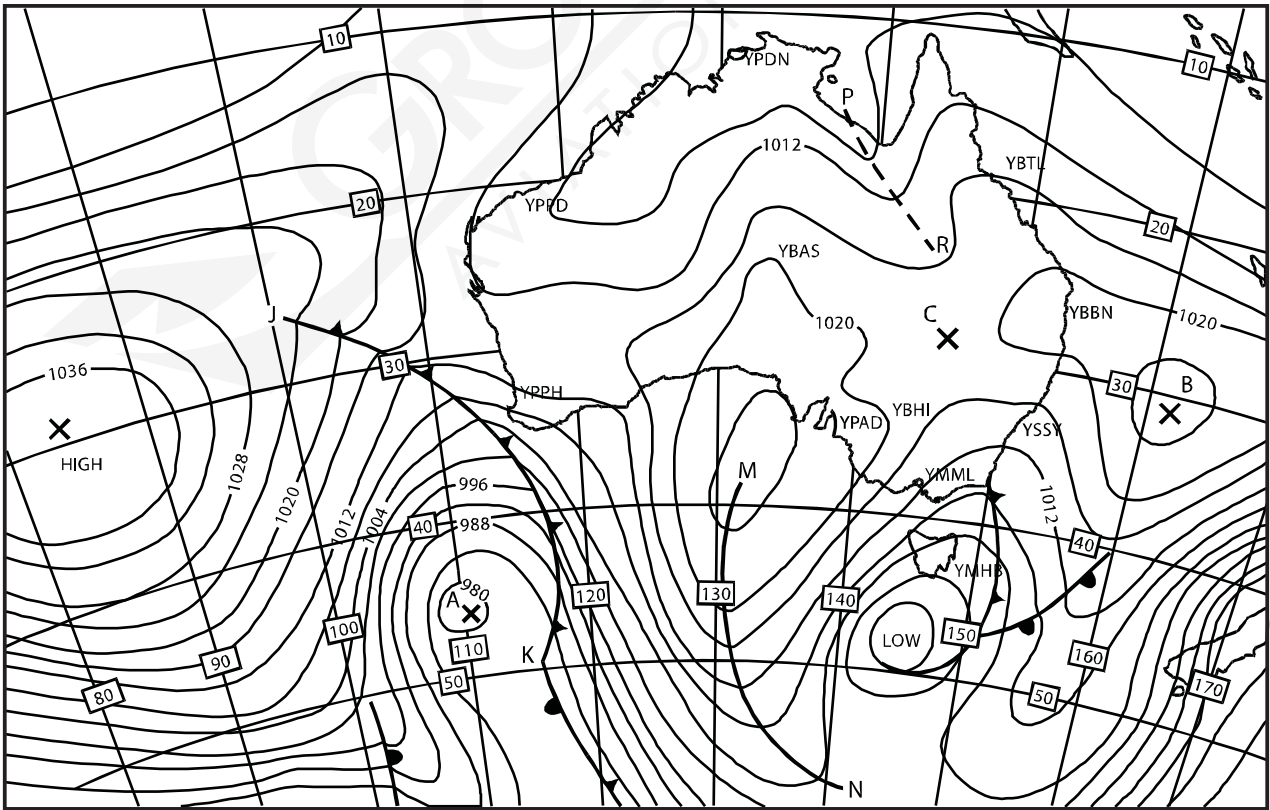


Figure 2

TRAINING AND EXAMINATION WORKBOOK

Meteorology Area Forecast

AMD ARFOR: AREA 21

OVERVIEW:

SURFACE TROUGH EXPECTED THROUGH YYNG/YMER AT 22Z, THROUGH YBTH/YSNW AT 05Z AND EAST OF AREA AT 11Z. SCTATTERED SHOWERS AND THUNDERSTORMS INCLUDING ISOLATED HAIL. AREAS OF RAIN CONTRACTING EASTWARDS. ISOLATED FOG AFTER 11Z.
REFER: SIGMET RE SQUALLS AND HAIL.

SUBDIVISIONS:

A: E OF TROUGH
B: W OF TROUGH

AMD WIND:

2000	5000	7000	10000	14000	18500
A: 350/25	340/30	340/35	340/40	340/50 MS04	340/55 MS14
B: 260/25	260/30	60/30	280/30 ZERO	280/40 MS08	280/60 MS17

AMD CLOUD:

AREAS OF BKN ST 1000/3000 W SLOPES 3000/5000 RANGES
ALSO WITH PRECIPITATION 1000/3000 COAST/SEA
BKN CUSC 2500/10000 W SLOPES 4500/11000 W RANGES
SCT CUSC 2500/10000 COAST/SEA 4500/11000 E RANGES
ISOL CB 5000/35000
BKN ACAS ABV 10000 CONTRACTING E

AMD WEATHER:

RA CONTRACTING E, SH/TS WITH HAIL, FOG AFTER 11Z

AMD VISIBILITY:

5000M SH/RA, 3000 TS, 0500 FG

AMD FREEZING LEVEL:

A: 12000
B: 9500

AMD ICING:

MOD IN CU 9500/11000 AND AC

AMD TURBULENCE:

MOD WITH CU AND AC
MOD TO ISOL SEV RANGES/COAST/60NM OFFSHORE
REFER: SIGMET RE SQUALLS AND HAIL

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