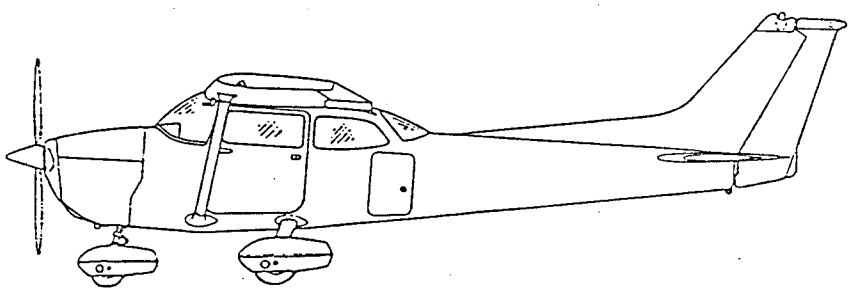
BUNBURY AERO CLUB (INC).

CESSNA 172

MANUAL



I N T R O D U C T I O N

WELCOME TO THE BUNBURY AERO CLUB (INC).

AS A STUDENT PILOT YOU WILL RECEIVE THE VERY BEST IN TRAINING FROM THE CLUB AND YOUR INSTRUCTOR, BOTH IN THE AIR AND ON THE GROUND.

THIS MANUAL HAS BEEN COMPILED FOR YOU TO USE AS A REFERENCE - NOT ONLY DURING YOUR FLYING TRAINING BUT ALSO LONG AFTER YOU HAVE COMPLETED YOUR LICENCE.

IT IS NOT MEANT TO TEACH, BUT RATHER TO REMIND YOU OF THE SALIENT POINTS YOUR INSTRUCTOR WILL BE TEACHING DURING YOUR TRAINING.

GOOD LUCK WITH YOUR FLYING - MAY IT PROVE TO BE AN EXHILARATING EXPERIENCE.

TOM TALBOT
C.F.I. / MANAGER

IMPORTANT:-

ALL AIRSPEEDS, FLAP SETTINGS OR OTHER OPERATING CRITERIA STATED IN THIS MANUAL ARE FOR THE CESSNA 152 AIRCRAFT ONLY AND MAY VARY FOR OTHER AIRCRAFT.

TRAINING SYLLABUS

R. P. P. L.

AIR EXERCISE	Briefs or Air Exercise Commenced	Flight Proficiency Attainted
Operation of Controls	...	...
Straight & Level Flight	...	...
Climbing	...	...
Descending	...	...
Turning	...	...
Stalling	...	...
Circuits - Including:-	...	...
A. Take off & Landing	...	...
B. Baulked Approach	...	...
Pre-Solo Air Legislation Passed	...	...
First Solo	...	...
Solo Consolidation (3 hours circuits)	...	...
Circuits - Flapless Landing	...	...
Circuits - Glide Approach	...	...
Steep Turns	...	...
Forced Landings	...	...
Stall Revision	...	...
Ditching (Brief Only)	...	...
Action in Event of Fire(Brief Only)	...	...
Instrument Flying	...	...
Cross Wind Circuits & Landings	...	...
Short Field Take-Offs & Landings	...	...
Precautionary Search & Landings	...	...
Spins & Spirals	...	...
Compass Turns	...	...
Limit Turns	...	...
B.A.K. and Radio Exams Passed	...	...
General Consolidation	...	...
R.P.P.L. Flight Test	...	...

N.B. The sequences following the solo consolidation are not necessarily carried out in the order shown.

BASIC RADIO CALLS

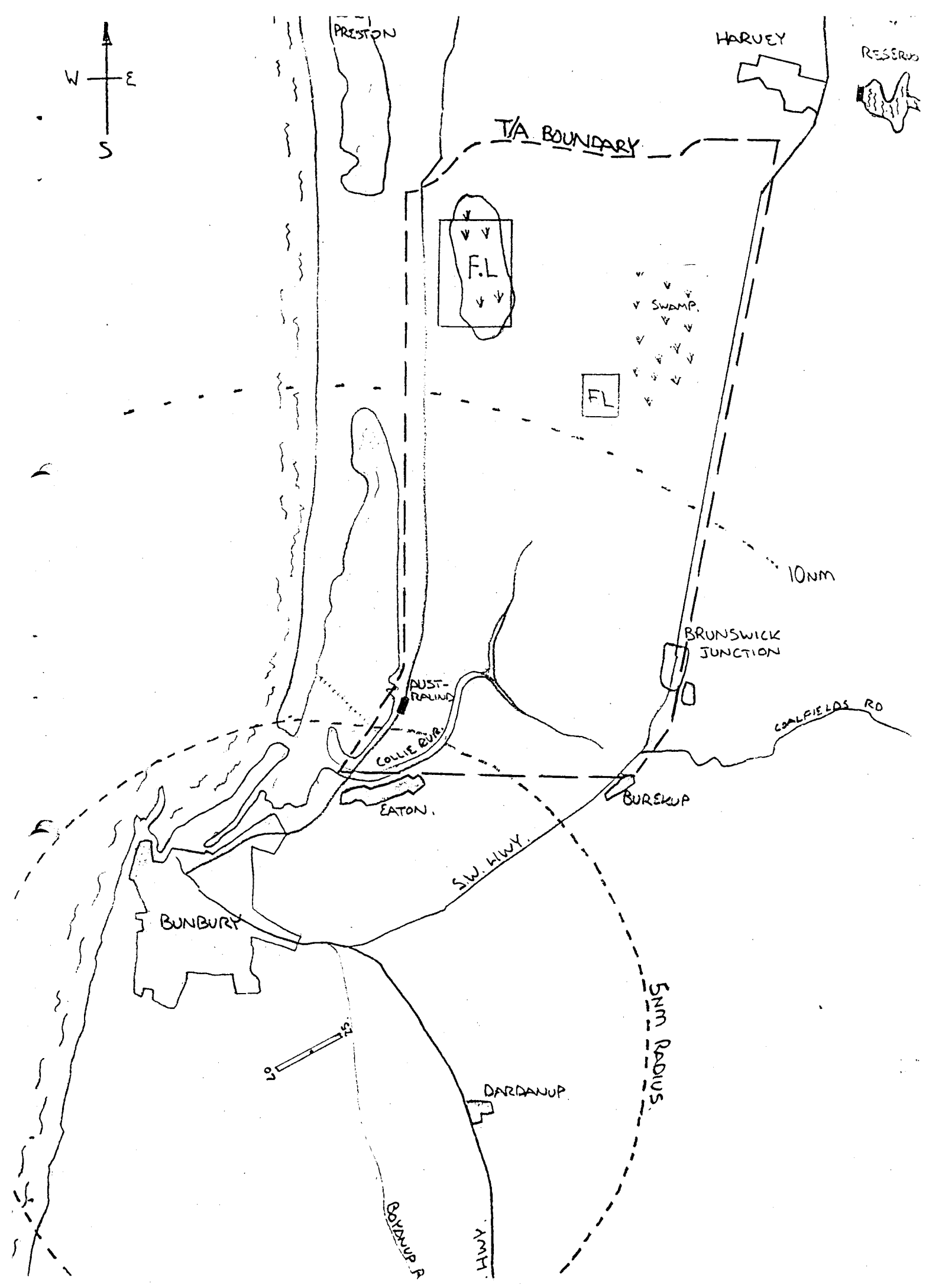
AFTER START UP - Monitor Frequency 120.0
- Listen for any local traffic.

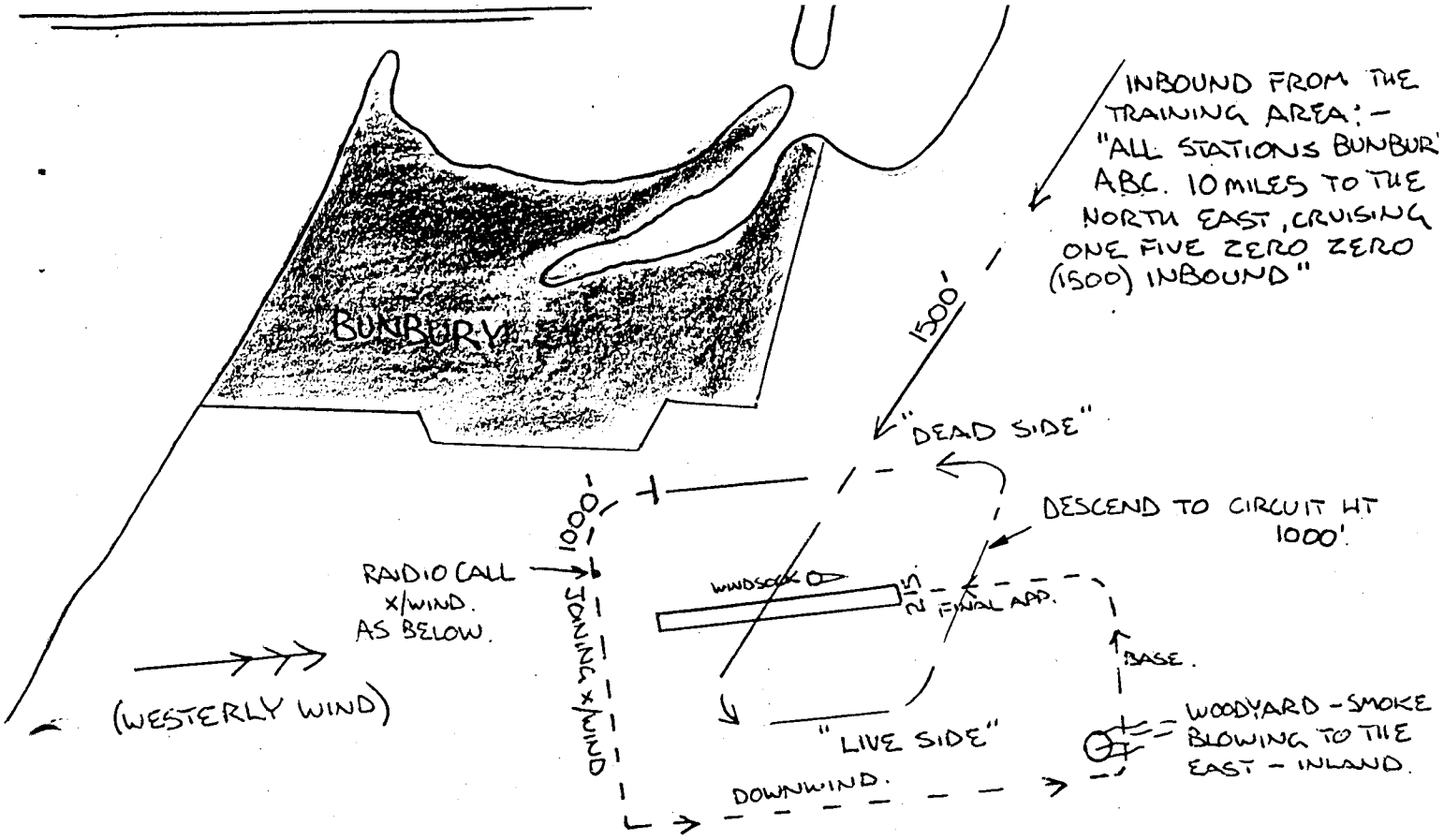
AT HOLDING POINT - "All stations Bunbury, this is ABC taxying for (circuits / training area) Runway (25 / 07)".

IN BOUND FROM TRAINING AREA - "All stations Bunbury, ABC 10 (ONE ZERO) Miles to the North, Inbound Cruising 1500

JOINING CIRCUIT CROSSWIND - "All stations Bunbury this is ABC joining X - wind for Runway (25 / 07)".

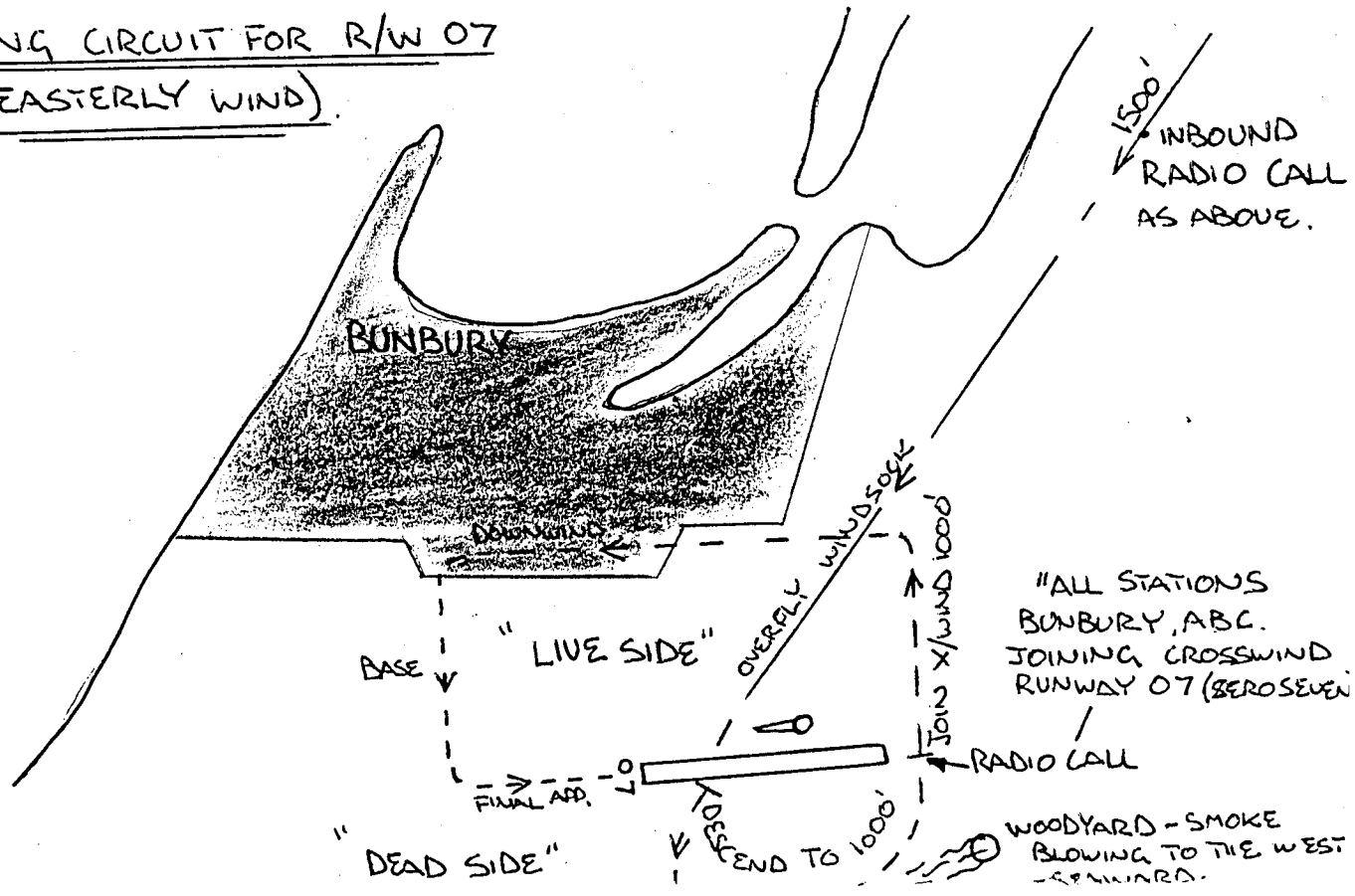
DOWNWIND (If only completing circuits) - "All stations Bunbury this is ABC downwind runway (07 / 25) (touch & go / fullstop)".


W
E
S
PRESTON
HARVEY
RESERVE
T/A BOUNDARY
F.L
SWAMP.
FL
10NM
BRUNSWICK JUNCTION
AUST-RALIND
COLLIE RIVER
COALFIELDS RD
EATON.
BUREKUP
S.W. HWY.
BUNBURY
5NM RADIUS
DARDANUP
BOYANUP RD
HWY.



REMEMBER:
1. INBOUND CALL
2. OVERFLY AT 1500' TO ACCESS WIND & LANDING DIRECTION.
3. DESCEND TO 1000' ON "DEAD SIDE".
4. JOIN x/WIND AT CT. HT. UPWIND OF THRESHOLD.
5. x/WIND RADIO CALL.
6. NORMAL CIRCUIT.

JOINING CIRCUIT FOR R/W 07 (EASTERLY WIND).



C 152 CHECK LIST

PRE-START

Brakes ON
Fuel ON
Controls FREE
Radios OFF
Mixture RICH
Throttle ¼
Carb. Heat COLD
Master ON
Prime engine
"CLEAR PROP"
Start

AFTER-START

Temps & Pressure
Amps - Light out
Flaps UP
Beacon ON
Radios ON
Set Altimeter
Set D.G.

SHUT DOWN

1000 r.p.m.
Radios OFF
Switches OFF
Mag. Check
Mixture LEAN
Throttle CLOSED
Ignition OFF
Master OFF
Controls LOCKED
CHOCKS

PRE TAKE-OFF

Brakes ON
Run up 1700 r.p.m.
Check Mags, carb. heat, temps
Suction, amps and idle r.p.m.

T - Trim
M - Mixture RICH
P - Primer LOCKED
F - Fuel ON
Flaps UP
Friction FIRM
I - Instruments set -
direction indicator
S - Switches required
C - Controls FREE
H - Hatches, harnesses

AFTER TAKE-OFF

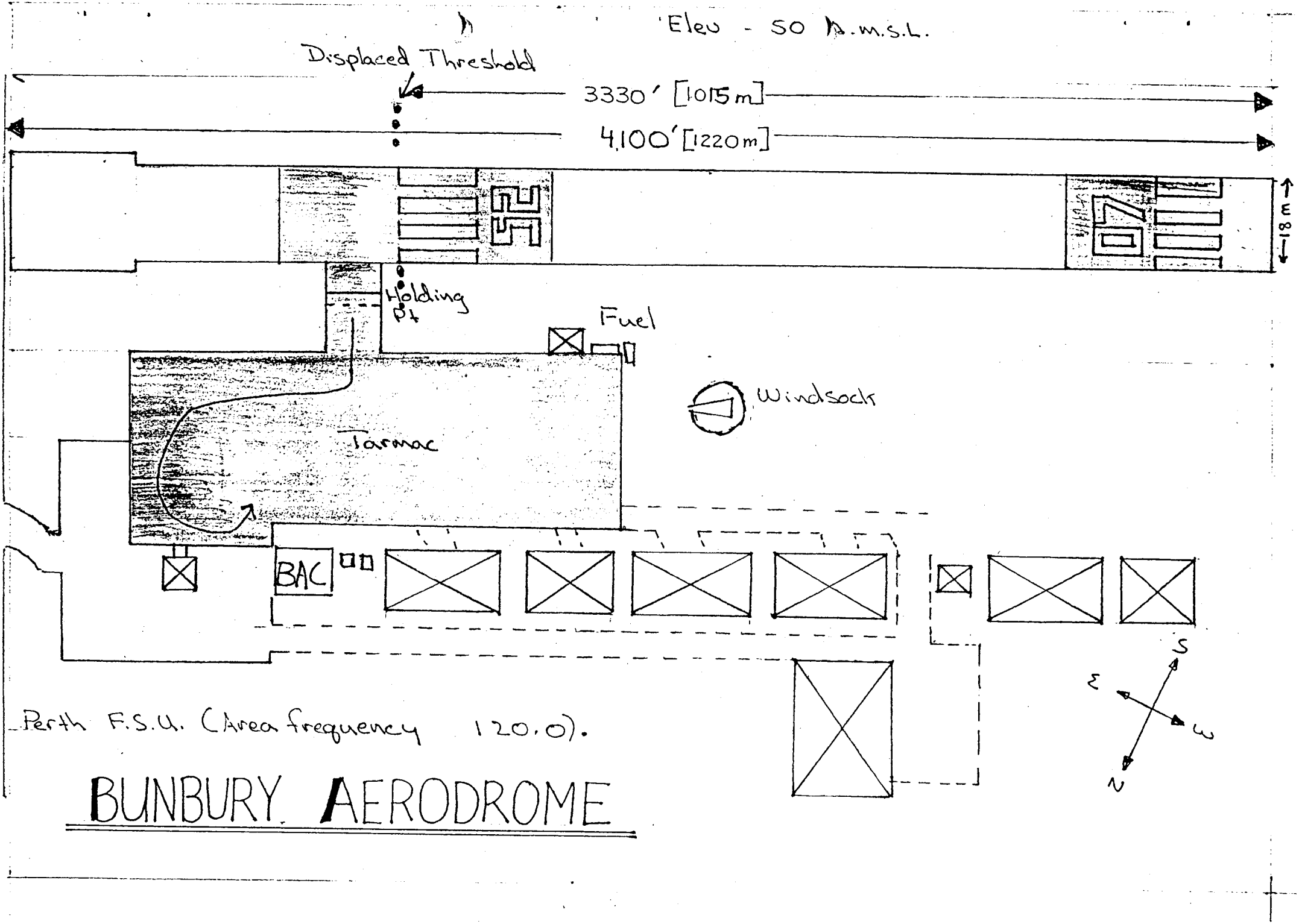
Flaps UP
Temps & Pressure

PRE-LAND

B - Brakes OFF
U - Undercarriage DOWN
M - Mixture RICH
F - Fuel ON
H - Hatches, harnesses

AFTER LANDING

1000 r.p.m.
Flaps UP
Trims Neutral
Radio CALL



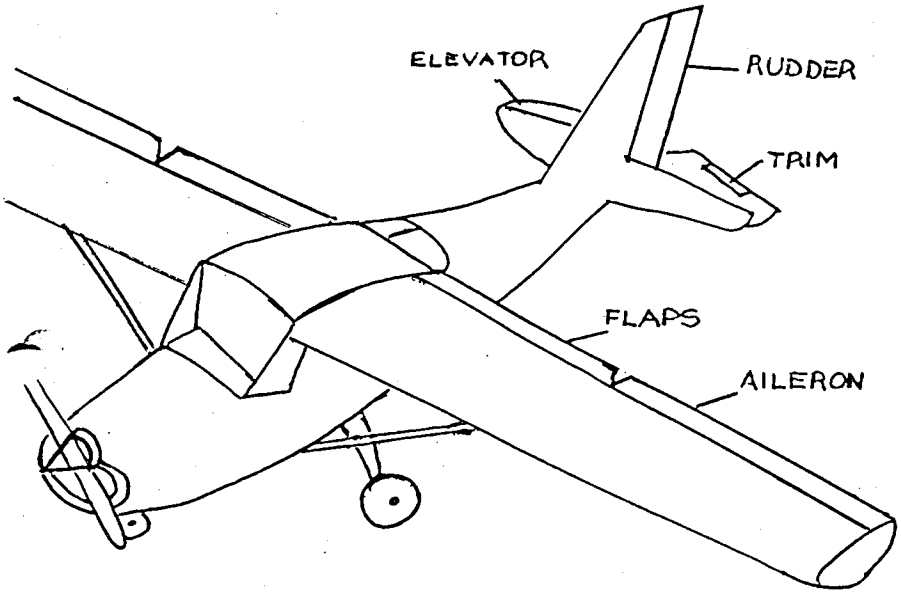
Perth F.S.U. (Area frequency 120.0).

BUNBURY AERODROME

OPERATION OF CONTROLS

AIM - To examine the effect of the primary and ancillary controls on the flight path of the aircraft.

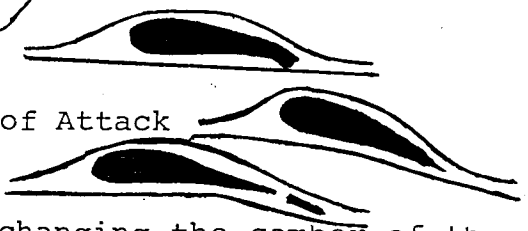
1. PRIMARY CONTROLS - AILERONS/ELEVATOR/RUDDER
   ANCILLARY CONTROLS - THROTTLE/FLAPS/TRIM



2. LIFT

In general an aircraft wing is more curved (cambered) on the top of the wing. This shape causes the air to travel faster over the top of the wind, causing a reduced pressure and thus a lifting force.

TO INCREASE LIFT:
A. Increase Speed
B. Increase Angle of Attack
C. Increase Camber



* Note that the primary controls rely on changing the camber of the surface of the wing.

3. EFFECT OF THE PRIMARY CONTROLS:

CONTROL	INITIAL EFFECT	FURTHER EFFECT
Ailerons	Roll	Yaw
Elevator	Pitch	-
Rudder	Yaw	Roll

4. EFFECT ON AIRSPEED ON THE PRIMARY CONTROLS:

Fast airspeed : controls effective
Slow airspeed : controls less effective

5. EFFECT OF POWER

Increase power: nose pitches up, yaws left
Decrease power: nose pitches down, yaws right

6. EFFECT OF TRIM:

The trim is designed to ease control load for the pilot.
* pulling back - trim back - Pushing forward - trim forward.

7. EFFECT OF FLAP:

The flaps increase both lift and drag, thus allowing the aircraft to fly slower and descend at a steeper angle.
*N.B. Flaps should be retracted in stages.

AIRMANSHIP: LOOKOUT - Especially before turning
RELAX - Flying is fun

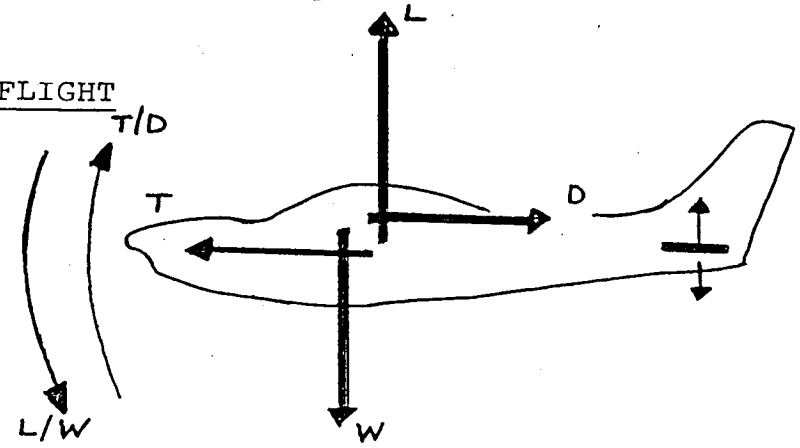
S T R A I G H T A N D L E V E L

AIM - To accurately fly the aircraft straight and level.

PRINCIPLES OF FLIGHT:-

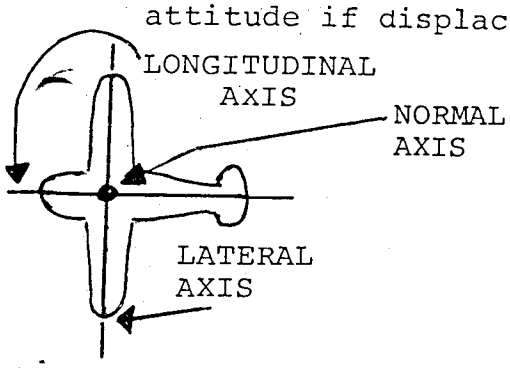
1. FORCES ON AN A/C IN FLIGHT

NOTE: LIFT = WEIGHT
THRUST = DRAG
and the tailplane is necessary to balance the turning moment produced by the forces LIFT/WEIGHT and THRUST/DRAG.



2. STABILITY :

Is the inherent ability of the aircraft to return to a given attitude if displaced from that attitude.



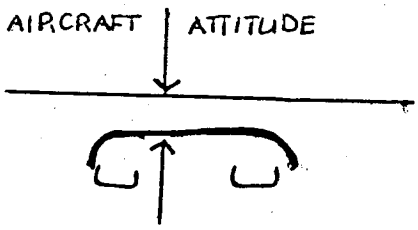
STABILITY in the	PLANE around the	AXIS
Lateral	Rolling	
Longitudinal	Pitching	Lateral
Directional	Yawing	Normal

NOTE! The cessna is a very stable aircraft and smooth gentle movements of all controls are required - even in turbulent conditions. AVOID OVERCONTROL.

AIR EXERCISE:

1. LEVELLING OUT: A - P.T.

Attitude, speed
Power 2300 RPM
Trim

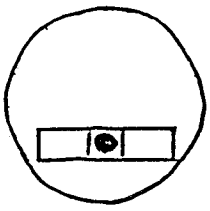


2. STRAIGHT:

Reference point
Wings level
Balance

3. LEVEL:

Reference point
Attitude
Power 2300 RPM



TURN & BALANCE INDICATOR

4. FLYING STRAIGHT & LEVEL AT OTHER SPEEDS & ATTITUDES:

The Cessna 152 cruises most efficiently at 2300 RPM, 95 kt, however we often have to cruise at different power settings and speeds. e.g. 2000 PRM, 70kt, 2600 RPM, 100 kt (approx)

AIRMANSHIP: LOOKOUT - Oil temperature and pressures, carburettor heat.

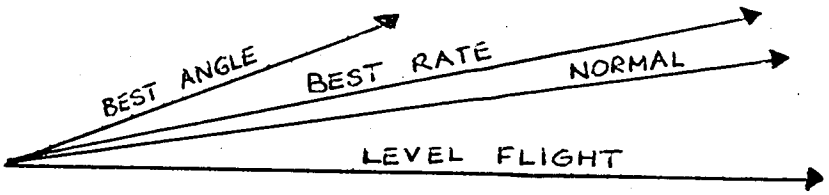
C L I M B I N G

AIM: To establish the aircraft in a steady climb.

PRINCIPLES OF FLIGHT:-

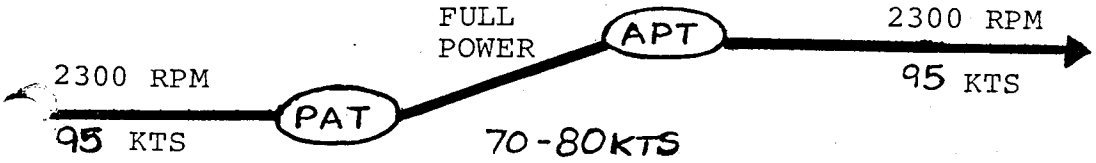
1. FACTORS AFFECTING THE CLIMB:
   a. WEIGHT ↑ Weight = ↓ angle of climb, ↓ rate of climb.
   b. FLAP: ↑ Flap = ↓ angle of climb, ↓ rate of climb.
   c. POWER: ↑ Power = ↑ angle of climb, ↑ rate of climb.
   d. WIND: Affects angle of climb only.

2. TYPES OF CLIMB: (CESSNA 152 AIRCRAFT)
   a. BEST ANGLE: 10 deg Flap, 54 KTs, full power
   This is generally only used to gain safe height quickly after a Short Field Take-Off.
   b. BEST RATE: Nil Flap, 67 kts, full power.
   This is used to gain maximum altitude in minimum Time.
   c. NORMAL CLIMB: Nil Flap or 10°, 70-80 kts full power
   This gives us a good rate of climb together with better engine cooling and is the one we use.



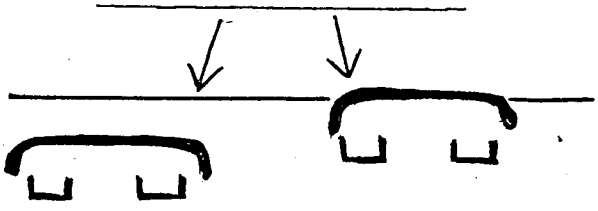
AIR EXERCISE:

To fly from STRAIGHT AND LEVEL to a CLIMB.



P	–	POWER (FULL)
A	–	ATTITUDE (FOR CLIMB)
T	–	TRIM

AIRCRAFT "ATTITUDES"



REMEMBER DURING CLIMB:

1. Reference point to climb straight
2. Wings level.
3. Balance with rudder in climb, due to increased power.
4. Monitor oil temp. and pressure.

AIRMANSHIP: 1). LOOKOUT - lower nose every 500 feet

D E S C E N D I N G

AIM -To establish the aircraft in a steady descent.

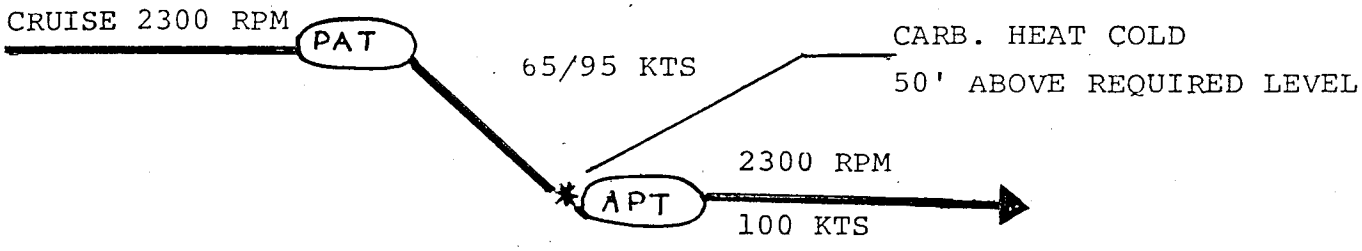
PRINCIPLES OF FLIGHT:

1. FACTORS AFFECTING DESCENT
   - a. FLAP: ↑ Drag & lift = steeper angle & rate of descent
   - b. WEIGHT: ↑ Weight = faster airspeed but same glide angle
   - c. WIND: Affects the glide angle only
   - d. POWER: ↑ Power = shallower glide, ↓ rate of descent

AIR EXERCISE:

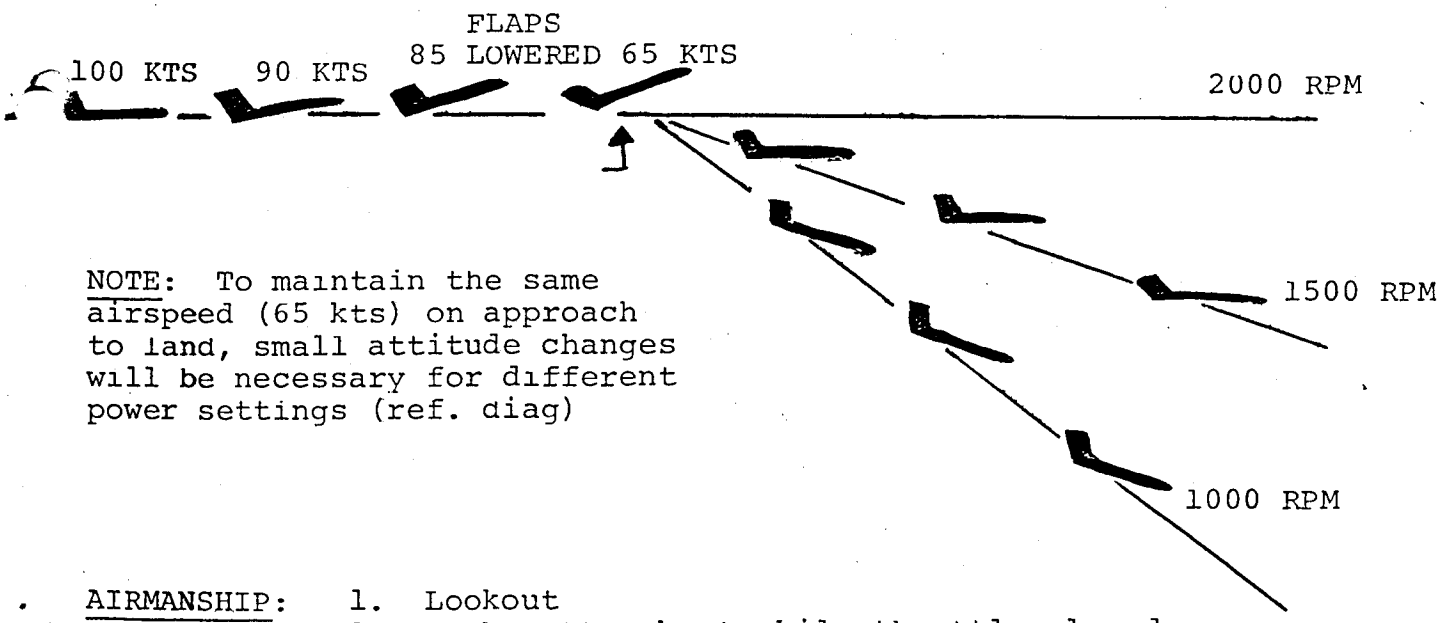
1. GLIDE DESCENT:
   Nil Power 65 kts

2. CRUISE DESCENT:
   2100 RPM 95 KT 500 FPM



NOTE: ATTITUDE controls airspeed
POWER controls rate of descent

3. DESCENT PROFILE FOR LANDING



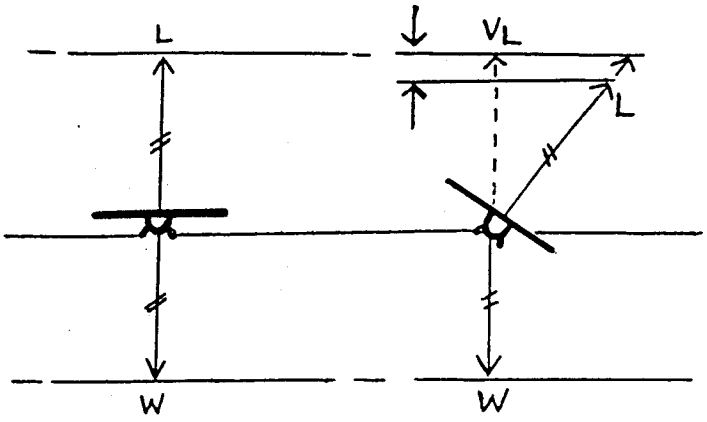
NOTE: To maintain the same airspeed (65 kts) on approach to land, small attitude changes will be necessary for different power settings (ref. diag)

AIRMANSHIP:
1. Lookout
2. Carburettor heat while throttle closed.
3. Engine temperature, pressures
4. Engine to be cleared every 1000 ft.

M E D I U M T U R N S

AIM - To establish the aircraft in a medium turn, 30 degree angle of bank, constant height and in balance.

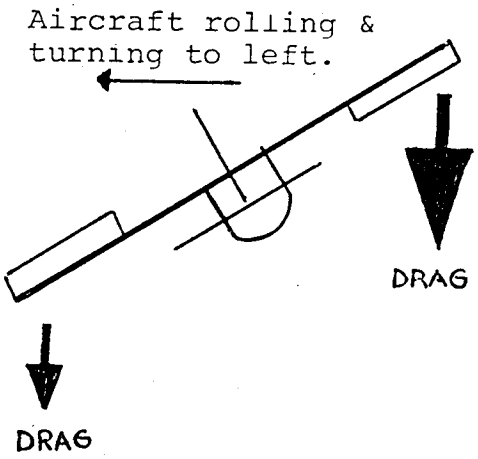
PRINCIPLES OF FLIGHT:



Hence, to maintain level flight in a turn, Lift must be increased so that the vertical component of Lift equals the Weight. This is done by increasing the angle of attack i.e. back pressure is required.

AILERON DRAG (adverse yaw)

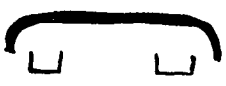
As the aircraft rolls, the right wing has increased lift and increased drag. This causes a yaw to the right. Thus RUDDER is required to balance a turn.



AIR EXERCISE:

1. PRIOR CONSIDERATIONS:
   a. Reference point and height
   b. Lookout
2. ENTRY:
   Roll in 30 degree check
   Balance with rudder
   Back pressure
   } Coordinated Movements
3. MAINTAINING THE TURN:
   Lookout
   Attitude
   Angle of bank/height
4. EXIT
   Anticipate - roll out
   Balance
   Release back pressure
   } Coordinated Movements

AIRMANSHIP:
1. Lookout
2. Orientation
3. Balance



ST & LEVEL

TURNING LEFT

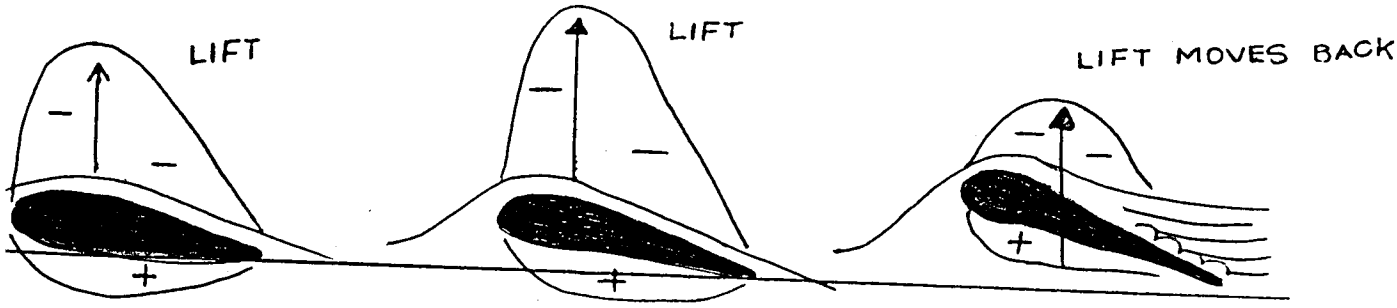
TURNING RIGHT

S T A L L I N G

AIM - To recognise -

1. The behaviour of the aircraft at low speeds.
2. The approach to the stall
3. To recover with minimum height loss

PRINCIPLES OF FLIGHT:



FACTORS AFFECTING THE STALL

POWER: Slower onset, ↙ stall speed, ↗ nose attitude

FLAP: Faster onset, ↙ stall speed, ↙ nose attitude

POWER & FLAP: Normal onset, ↙ stall speed, normal nose attitude possible wing drop

WEIGHT: ↗ Weight = ↗ stall speed

NOTE: An aircraft will stall when the critical angle is reached irrespective of airspeed or attitude.

AIR EXERCISE:

1. "HASEL" CHECKS
   - H - Height - (Recovery by 3000 ft)
   - A - Area
   - S - Security
   - E - Engine
   - L - Lookout

2. ENTRY TO THE STALL
   - Reference point and height
   - Carburettor heat
   - Close throttle
   - * Maintain height (progressively more back pressure)
   - Keep straight with rudder

3. SYMPTOMS APPROACHING THE STALL:
   - Low airspeed
   - High nose attitude
   - Controls become progressively less effective
   - Less noise
   - Stall warning
   - Buffet?

4. STALL:
   - Aircraft sinks, nose pitches down possible wing drop

5. RECOVERY:
   1. FULL POWER
   2. EASE FORWARD
   3. PREVENT FURTHER YAW WITH RUDDER
   4. ADOPT A CLIMB

   } TOGETHER

AIRMANSHIP:- 1. "HASEL" checks 2. An ...

FORCED LANDINGS

AIM - To select an area and safely land the aircraft in case of engine failure or other emergency.

LANDING AREA	WIND
S - Size	Smoke/Dust
S - Slope	Last known wind
S - Surface	Forecast Wind
S - Surrounds	Aircraft drift
S - Situation	Cloud Movement
	Wind Lanes (lakes)

AIR EXERCISE:

1. EMERGENCY - Conserve height

   F - Fuel
   C - Carb Heat Hot
   M - Mixture Rich
   I - Ignition - On
   T - Pump Throttle for restart

   } TRIM FOR 65 KTS

2. SELECT AREA - Plan the descent (Head for 1000 ft point)

3. SUBSEQUENCT CHECKS:-
   F - Fuel on and on fullest tank
   C - Carburettor heat hot
   M - Mixture rich
   O - Oil pressure
   S - Switches both
   T - Throttle for response

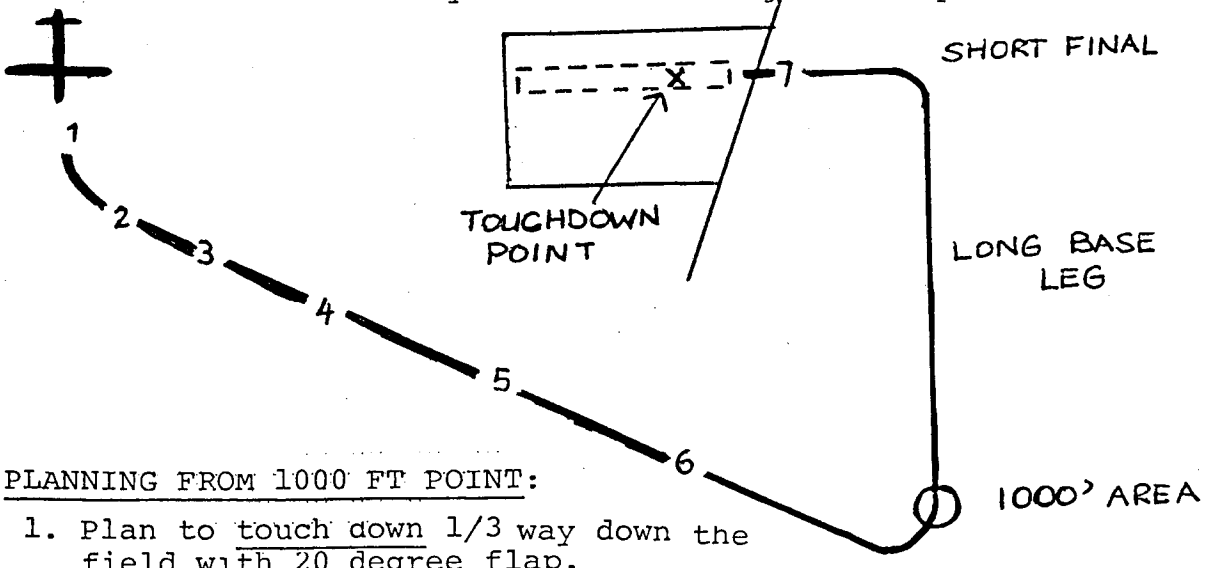
4. "MAYDAY, MAYDAY, MAYDAY -

   Perth, this is Alpha, Bravo, Charlie, one zero miles North of Bunbury, engine failure, forced landing, 2 persons on board.

5. PASSENGER BRIEF - seat belts, glasses, false teeth, reassure.

6. SHUTDOWN - Fuel and Mags - OFF

7. MASTER OFF - only after last stage of flap has been taken.



PLANNING FROM 1000 FT POINT:

1. Plan to touch down 1/3 way down the field with 20 degree flap.
2. Use full flap to bring the touchdown point towards fence.
3. If high - extend distance to field - take flap earlier.
   If low - take short cut to field - delay flap.

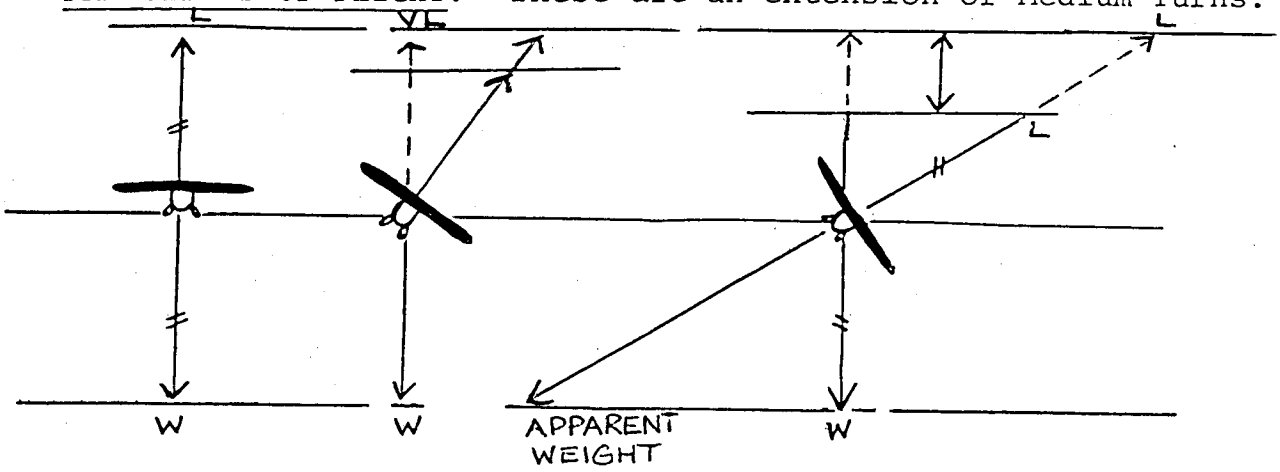
SIMULATED EXERCISE - Clear engine every 1000 ft, overshoot 200 ft AGL (low flying paddock), 500 ft otherwise.

LOOKOUT

S T E E P & L I M I T T U R N S

AIM - To turn the aircraft at angles of bank between 45 degrees and 60 degrees at a constant altitude.

PRINCIPLES OF FLIGHT: These are an extension of Medium Turns.



Note how the LIFT force in a 60 degree angle of bank turn needs to be increased to double its normal value to achieve the required V_L (vertical component of lift) to maintain height. The reaction to this force is the apparent weight which is the G load or force we feel in the seat of our pants, eyes etc.

LIMIT TURN:

1. ↑ Angle of bank = ↑ G load = ↑ in stall speed.
2. ↑ Angle of bank = ↑ angle of attack = ↓ air speed.

When the angle of bank is reached where the stall speed is the same as the airspeed is a LIMIT TURN.

NOTE: The angle of bank of a limit turn is LIMITED by the engine power available to maintain level flight hence the name.

AIR EXERCISE:

ENTRY : Coordinated Movements
- Lookout - ref. point
- Roll in
- Rudder to balance as in normal turn
- Power (Remember the old aileron
- Back pressure. drag is with us again).

MAINTAINING THE TURN:
- Lookout
- Attitude
- Angle of bank/height

EXIT Coordinated Movements
- Roll out
- Balance with rudder
- Reduce power to normal
- Relax back pressure

AIRMANSHIP:
1. Lookout
2. Orientation
3. Balance

CROSS WIND T/OFFS & LANDINGS

1. CROSSWIND TAKE-OFF

   1. AILERONS INTO WIND - REDUCE AILERON AS AIRSPEED INCREASES
   2. KEEP STRAIGHT WITH POSITIVE USE OF RUDDER
   3. 60 KTS - LIFT A/C CLEANLY INTO THE AIR
   4. GENTLY CRAB A/C INTO WIND - TRACK OUT ON EXTENDED CENTRELINE

CROSSWIND LANDING

It is important to realise the function of the PRIMARY CONTROLS in these landings.

RUDDER - aligns the aircraft straight with the runway

AILERONS - stop the sideways drift of the aircraft

The landing is the same in every respect to a normal into wind landing - I.E. ROUND OUT - FLY LEVEL - HOLD OFF. During the hold off, yaw the A/C straight with rudder, while at the same time apply opposite Aileron to stop the wing lifting (further effect of yaw is roll - remember). e.g. If X wind is from the left we need right rudder and left aileron.

The aircraft should touchdown on the "into wind" main wheel first, then the other main wheel and the nose wheel last. As we continue our ground roll increase the aileron into wind as we slow down. Positive steering required.

NOTE -

The secret of a good landing is ANTICIPATION. Check the windsock and work out control directions:-

   A. Before you enter the runway for Take-off.
   B. On mid-finals, prior to landing.

AIRMANSHIP - Ailerons into wind at all times when taxying on windy days.

Anticipate.

SHORT FIELD & FLAPLESS T/OFF AND LANDING

As a pilot you will be required on occasions to be able to carry out specific take-offs or landings. These are detailed as follows:-

A. FLAPLESS LANDING - This landing has a slightly flatter approach than normal. Application of power tends to increase the airspeed so small power changes only should be made. The aiming point becomes the touchdown point. Fly the A/C onto the ground and close throttle on touchdown. Hold off will increase landing distance dramatically.

AIR EXERCISE

1. EXTEND DOWNWIND OR SLOW DOWN ON DOWNWIND
2. DESCEND EARLY - 70 KTS
3. APPROACH PERSPECTIVE FLATTER
4. POWER REGULATES DESCENT - 65 KTS FINALS
5. AIMING POINT IS THE TOUCH DOWN POINT
6. LITTLE OR NO ROUND OUT

B. SHORT FIELD LANDING - Sometimes called a "Performance" Landing and used when landing on airstrip of minimum length or on a "Precautionary landing". This technique ensures minimum landing distance is used. The approach profile and landing technique is the same as for flapless landings - i.e. slightly flatter.

AIR EXERCISE

1. NORMAL BASE LEG - DON'T OVERSHOOT
2. TURN FINALS - CHECK CORRECTPERSPECTIVE
3. 54 KTS ON SHORT FINAL - POWER TO REGULATE DESCENT
4. AIMING POINT IS THE TOUCHDOWN POINT
5. LITTLE OR NO ROUND OUT

C. SHORT FIELD TAKE-OFFS - Sometimes called the "Performance Take-Off" this technique allows for minimum ground run and maximum obstacle clearance.

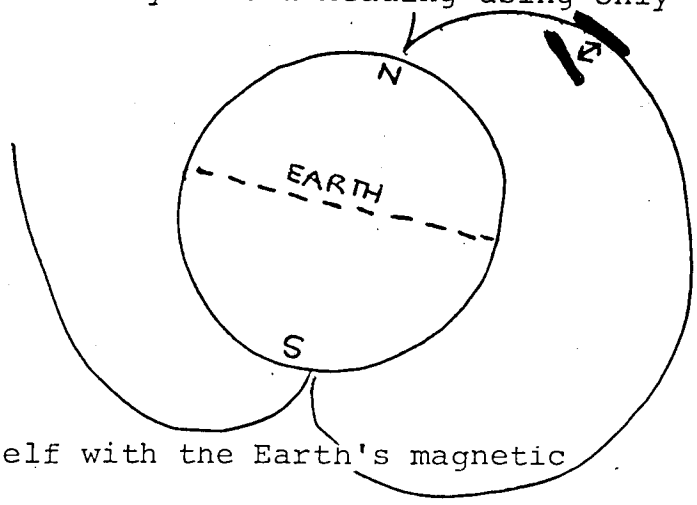
AIR EXERCISE -

1. SET 10 DEGREE FLAP
2. LINE UP - USE ALL THE RUNWAY
3. QUICKLY AND SMOOTHLY APPLY FULL POWER - ENSURE CONTROLS NEUTRAL AND A/C LEVEL IF TAIL LOW
4. 50 KTS - EASE BACK - 55 KTS - CLIMB ATTITUDE
5. CLEAR OF OBSTACLES - LOWER NOSE TO NORMAL CLIMB ATTITUDE
6. FLAPS UP - 200' AGL

COMPASS TURNS

AIM - To turn the aircraft accurately onto a heading using only the Magnetic Compass.

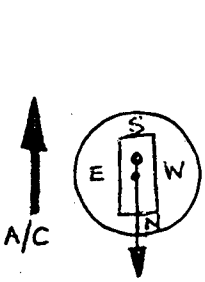
PRINCIPLE OF THE COMPASS -

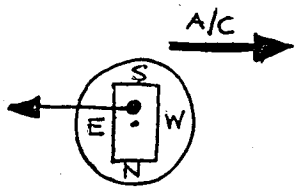


1. The compass aligns itself with the Earth's magnetic flux linge.
2. The compass is weighted so that it hangs parallel to the surface of the Earth (Ref. diag 2.)
3. Therefore, the pivot and the centre of gravity of the compass do not coincide and this allows 2 errors to occur.

COMPASS ERRORS

1. ACCELERATION:





Northerly or southerly heading - NO EFFECT

Easterly or westerly heading - SWINGS SOUTH

2. TURNING:

When the aircraft turns, centrifugal force acts on the displaced Centre of Gravity of the Compass and causes errors. Hence when turning to the North we must overshoot by up to 30 degree and when turning South we undershoot by up to 30 degrees.

NOTE:

1. Do not rely on the compass when accelerating and decelerating.
2. When turning overshoot to 30 degree maximum on N and undershoot to 30 degree max. when turning S.

AIR EXERCISE

1. SAND (South - Acceleration, North - Deceleration)
2. ONUS 30 degree - (Overshoot North, Undershoot South 30 degrees)

INSTRUMENT FLYING

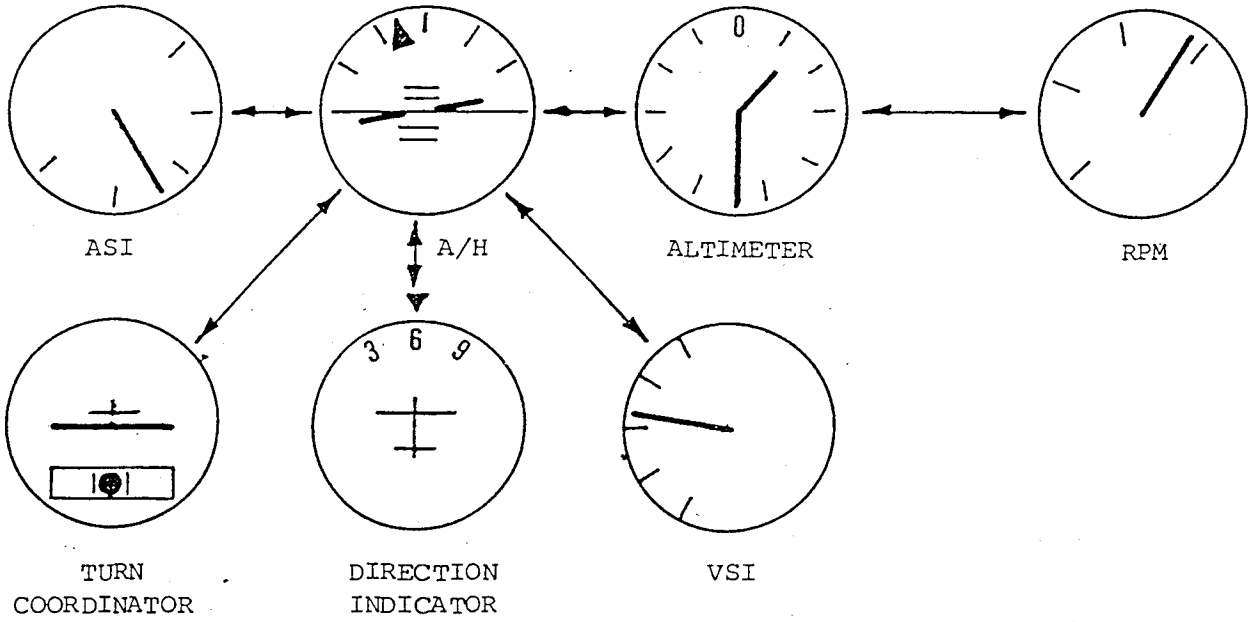
AIM - To control the aircraft accurately with sole reference to the instruments.

CONSIDERATIONS - How do we sense balance?

VISUAL:	reliable
MUSCULAR:	unreliable
INNER EAR:	unreliable

In short - our body senses don't always give our brain the correct sensation - BELIEVE YOUR INSTRUMENTS

INSTRUMENT SCAN: Approximately 90% of the time should be spent looking at the artificial horizon.



INSTRUMENT LIMITATIONS:

GYROS: Artificial horizon - 55 deg. pitch, 100 deg. roll
Direction indicator - 55 deg. pitch & roll - topple limits
Turn coordinator - rate 4 turn

PRESSURE INSTRUMENTS: Air speed indicator
Vertical speed indicator - 4 - 6 second lag
Altimeter

AIR EXERCISE:	PRIMARY INSTRUMENTS	FURTHER REF
Pitch	A/H	ASI, VSI, ALT
Roll	A/H	Turn co-ord, DI, Compass
Yaw	Turn Co-ord	

* small changes - check and hold
* Believe the instruments
* Scan constantly
* Fly attitudes on AH and scan appropriate flight instruments to verify correct performance

AIRMANSHIP:- 1). Simulated only: No I/F solo or in cloud: is not a ratir
2). Instruments - checks during taxying.
3). Instructor to lookout.

PRECAUTIONARY SEARCH AND LANDING

AIM - In case of urgency, to select a field suitable for landing and take off (and land safely).

REASONS:

1. Poor weather - unable to maintain VMC
2. End of daylight
3. Low on fuel
4. Lost

} POOR AIRMANSHIP

CONSIDERATIONS:

1. LANDING AREA

S - Size
S - Slope
S - Surface
S - Surrounds
S - Situation

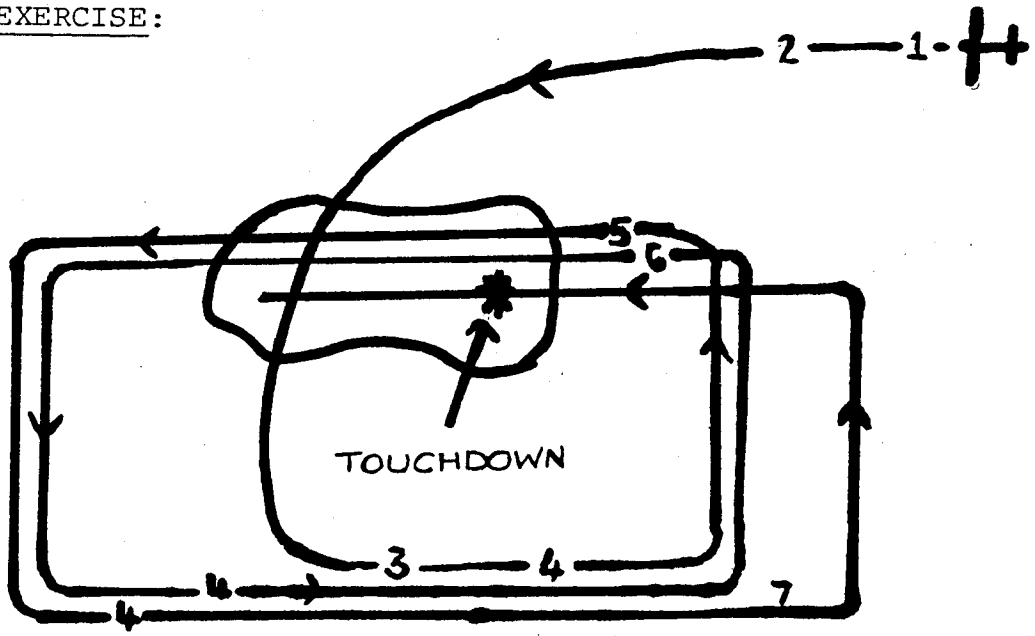
2. WIND DIRECTION

Smoke
Last known wind
Water lanes
Forecast
A/C drift

CIRCUIT DETAILS - (IMPORTANT)

1. Elongated circuits close to the field
2. Slow, safe cruise (flap 10 degree 70 kts 2000 RPM) 500 ft AGL
3. Don't retrim on descent
4. Turning at low altitude, beware apparent slip and skid. (keep the ball in the middle).

AIR EXERCISE:



IMPORTANT

1. Adapt low safe cruise 500' AGL
2. "Pan Pan Pan - radio call
3. Directional gyro set 180 degrees (i.e. south)
4. Pre-landing check done on each circuit
5. First approach - 100' check approach/overshoot
6. Second approach - 50' check * touchdown area/ surface/length
7. Extend down wind - short field landing.

AIRMANSHIP -

1. Should never happen
2. Not low over the houses
3. Simulated exercise only

S P I N S & S P I R A L S

SPINS - Don't let the term "SPIN" frighten you. We will be practicing "INCIPIENT SPINS" or "beginnings of" the spin only - so we can learn to recognise the symptons involved and to recover the aircraft back to normal flight with minimum height loss using correct spin recovery technique.

DEFINITION:

A spin is a STALLED CONDITION OF FLIGHT where the aircraft rolls, pitches and yaws in a steep downward descent.

AIR EXERCISE:

ENTRY
1. Power off - (carb heat hot).
2. Stall A/C (maintaining altitude).
3. At point of stall yaw A/C with full rudder in the required direction of rotation.

RECOVERY
1. Full opposite rudder.
2. Brisk forward movement of control columnto break the stall (for full spin only)
3. Centralise rudder as rotation stops.
4. Recover drom dive.

NOTE - For the INCIPIENT SPIN recovery we relax the back pressure and apply full opposite rudder as soon as the nose drops below the horizon.

SPIRALS

DEFINITION

A spiral is an UNSTALLED CONDITION of flight where the aircraft descends with increasing angle of bank and airspeed.

ENTRY

This usually occurs where the nose has not been held up with sufficient back pressure during a steep turn or inadvertent excessive angles of bank.

SYMPTONS	RECOVERS
High rate of descent	Close throttle
High angle of bank	Level wings
Airspeed rapidly increasing	Ease out of dive
	Power on when nose on the horizon

AIRMANSHIP "HASEL" checks (refer stalling brief).

QUESTIONS THAT MAY BE ASKED DURING THE RESTRICTED P.P.L. TEST

1. What is a certificate of registration?
2. What is a certificate of airworthiness?
3. How long does a C of A remain valid?
4. What is a Maintenance Release?
5. How many hours or for what period is a M/R valid?
6. What action must be taken to re-issue a Maintenance Release?
7. If an aircraft is unserviceable, what action should be taken?
8. Where should the C of A and the M/R be kept?
9. What information does the engine and airframe logbooks contain?
10. How many hours can the engine run before complete overhaul?
11. Before starting an aircraft, what factors must be considered in in relation to positioning the aircraft.
12. When starting an aircraft by hand, who is responsible for the procedure to be used?
13. Why is the engine cleared when practising forced landings?
14. What is the maximum permissible cross wind component of your A/C?
15. What is the difference between A.N.O.'s, A.N.R.'s and A.I.P.'s?
16. What equipment must be carried on a cross country flight?
17. What is the procedure for tying down your aircraft?
18. If strong winds are forecast, in which direction would you place the aircraft prior to tying down.
19. What is the purpose of a Pitot cover?
20. What is the correct grade of fuel to be used for your aircraft?
21. Should the correct grade of fuel be obtainable, what procedures must be used?
22. What is the grade of oil used?
23. Why in some aircraft is the grade of oil changed during the summer and winter?
24. What engine is installed in your aircraft and what is the horse-power?
25. What is the fuel and oil capacity?
26. What is the safe endurance of your aircraft?
27. Explain the fuel system.
28. What are the minimum, maximum and normal fuel consumption?
29. When should a water check be made and how is water detected?
30. Should an aircraft be refuelled at the cessation of a day's flying or at the beginning of the next?
31. What is the empty weight of the aircraft? What items are included in the empty weight?
32. What is the maximum permissable all up weight?
33. What action must you take after making a heavy landing?
34. What is meant by the term 'position error'?
35. Why is it necessary at times to reduce the angle of climb?
36. What is Density Altitude?
37. What are the specifications for an A.I.A.?

CONTINUED

38. What are the specifications for an A.L.A. for category 3 aircraft?
39. What is the difference between a restricted area and a danger area?
40. Is your training area a restricted or a danger area?
41. What precautions would you take when flying in turbulent weather?
42. What is the flap lowering speed and why?
43. Why is there a maximum manoeuvring speed laid down?
44. What is the difference between aerial work and private aircraft?
45. What types of brakes are fitted to your aircraft?
46. What are the type pressures?
47. What is the difference between a 58 inch pitch prop and a 60 inch prop? (P.A. 28 only)
48. Which type of prop is fitted to your aircraft?
49. With the aid of the flight manual explain how you would use a P.A. chart.
50. When should carburettor heat be used?
51. What procedure should be used to determine whether "carbi" ice is imminent?
52. Explain the operation of the mixture control.
53. When should the mixture control be used?
54. Detail the procedure for refuelling from a 44 gallon drum.
55. Some fire extinguishers are blue, some are red: explain the significance.
56. What fuel consumption would you expect at take-off?
57. Explain the use of the loading chart for your aircraft (if applicable
58. Under what conditions would a flight through a prohibited area be possible.
59. For a one hour flight and return in your aircraft, to the training area, what fuel would be carried?
60. What should be done before carrying out stalling or any aerobatic sequence?
61. What is the meaning of a red light given to an aircraft on final approach to land?
62. What is the maximum speed that is permitted in the circuit area?
63. At a non-controlled airfield how soon after take-off can a right hand turn be made?
64. Explain the use of declassed density altitude charts.
65. How would you tell the difference between 80/87 and 100/130 octane fuel in colour?
66. What is the significance of the green bank around the inside of the A.I.S.?
67. What is the Vne (velocity never exceed) of your aircraft?
68. What is the maximum height to which you can operate in the Bunbury training area.
69. What would you do if the engine caught fire?
70. Where is the aircraft battery?
71. Where is the hydraulic brake fluid reservoir?

RESTRICTED PRIVATE PILOTS LICENCE THEORY QUESTIONS

1. Calculate the runway length required to take off and land given the following conditions:

   2 POB, fuel 70 litres, QNH 1002, temperature 32C, wind 270/20, runway 25 BUN (flight manual)

2. State the general conditions which apply to authorized landing areas.
   Draw a diagram to illustrate the required dimensions. (VFG)

3. What would your action be if your radio failed:

   a. In the circuit
   b. In the training area?

4. As a restricted private pilot, must you remain in the Bunbury training area? (ANO 40.1.2

5. How is a RPPL renewed? How long does it remain valid? (40.1.2)

6. Can you carry passengers? What are the restrictions? (40.1.2)

7. Can you fly:- a. At night
   b. In formation
   c. Acrobatically
   d. An A/C with a retractable undercarriage?
   State the requirements. (ANO 20.16.3)

8. What would be your action if your air speed indicator failed in flight? Which instruments are mandatory for private VFR flight? (ANO 20.18)

9. Is it legal for you to change the spark plugs of our A/C? List the maintenance which may be carried out by a pilot. (ANO)

10. A C172 has 4 seats. Can you take more than 3 passengers? State the general requirements (ANO 20.9)

11. Can passengers remain on board when the A/C is being refuelled? State the requirements. (ANO 20.16.3

12. Is smoking legal while flying a light A/C?

13. Is it legal to disembark an A/C while the engine is running? (20.9)

14. State the restrictions regarding flying and drinking alcohol. (ANR)

15. Can you use blue fuel in a C152. What is it?

16. Can you charge money for taking a person flying? Is it legal to share the cost?

17. Sketch a map of the BUN training area.

18. What is the minimum distance you can park from another aircraft or a hangar when refuelling.

N.B. A set of A.N.O. (Air Navigation Orders) publications is available for your use. Also a pre licence "RPPL Pack" is available to help you with some of the things you need to know.

RESTRICTED PRIVATE PILOT LICENCE --- REFERENCES

A.N.O.'s	Section	20 - 2	Safety precautions pre-flight.
		20 - 7 - 4	Aeroplane weight and performance limitations.
		20 - 9	Aircraft equipment App. 1
		40 - 1 - 2	P.P.L.
		100 - 5 - 1	Maintenance by a pilot App. 2

VISUAL FLIGHT GUIDE (VFG)

Page	44 - 51	Altimetry.
	67 - 71	Circuit Traffic
	209 - 211	Aerodromes (A.L.A. measurements for daytime use only need be learnt)

AIR LEGISLATION

Section 1 Page 5 - 13

Section 2 Page 14 - 15

Understand - 1). Maintenance Release.
2). Flight Manual
3). Performance Charts

EMERGENCY PROCEDURES

KNOW - 1). Mayday and Urgency Message
2). Radio Failure Procedures
3). Light Signals

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK FOR ANY NOTES STUDENTS MAY LIKE TO RECORD.
