

CAVOK

CAVOK Aviation Training Ltd.

**Cessna C177**

## 1. Pre Flight Inspection

- In the Cabin
  - Aircraft Documents ..... CHECKED
  - Battery ..... ON
    - Fuel Quantity..... CHECKED
    - LND GEAR Lever ..... DOWN, Green Light
    - Flaps.....20°
  - Battery ..... OFF
  - Fuel Valve ..... BOTH
  - Control Locks .....REMOVED
- Outside Inspection
  - Wings
  - Engine
    - Oil ..... 7-8 Quarts
    - Propeller
  - Fuel
    - Quantity..... CHECK WITH INSTRUMENT
    - Drains
  - Pitot Covers.....REMOVED
  - Surfaces
  - Landing Gear Mechanism
  - Antennes

## 2. Before Start Up

- Seat Belts.....FASTENED
- Doors.....CLOSED
- Brakes..... SET
- Landing Gear Lever ..... DOWN
- Electrical Equipment ..... OFF
- Circuit Brakers ..... IN
- Cowl Flap ..... OPEN
- Fuel Valve ..... BOTH

## 3. Engine Start

- Master Switch..... ON
- Throttle .....¼ OPEN
- Prop Lever ..... FWD
- Mixture..... IDLE CUTOFF
- Anti Coll. Light ..... ON



**PRIME THE ENGINE (IF ENGINE HOT DO NOT PRIME)**

- Fuel Pump..... ON
- Mixture.....advance until FF 3-5G/h, then IDLE CUTOFF
- Propeller Area – „Clear Prop?!“ ..... CLEAR
- Starter .....ENGAGE

**WHEN ENGINE FIRES**

- Mixture..... RICH
- Throttle .....1000/1200 RPM

**CHECK OIL PRESSURE AND GENERATOR**

- Fuel Pump..... OFF

**IF ENGINE FLOODS**

- Fuel Pump..... OFF
- Mixture..... IDLE CUTOFF
- Throttle .....½ OPEN
- Starter .....ENGAGE

**WHEN ENGINE FIRES**

- Mixture..... RICH
- Throttlet .....1000/1200 RPM

**CHECK OIL PRESSURE AND GENERATOR**

**4. After Start Up & TAXI**

- Electrical Equipment ..... ON
- Engine Warm Up..... **1500 RPM**
- Taxi Light ..... ON
- CHECK:
  - Brake
  - Flight Controls
  - Trim Setting

**5. Engine Runup**

- Engine Instruments..... CHECKED
- Throttle ..... 1800 RPM
- Ignition .....1, 2, DROP MAX 150 RPM, DIFFERENCE 50 RPM
- Propeller.....cycle form HIGH to LOW 3 times, then HIGH

- Mixture.....LEAN GRADUALLY
  - FF decrease
  - EGT increase
- Mixture..... RICH
- Fuel Pump..... ON check FF then OFF
- Governor
  - Throttle..... 2300 RPM
  - Prop Lever..... Set 2100 RPM
  - Throttle.....cycle MP +/- 2  
RPM schould remain 2100
  - Throttle..... IDLE
  - Prop Lever.....HIGH
- Throttle..... FULL PWR then IDLE

### RISK OF FUEL VAPOR

On a hot day, when temperature is above 28 °C and the engine is hot there is a risk of fuel vapor in the system. It is indicated by fluctuating FF, RPM or rough engine operation on high power setting. To eliminate fuel vapour set high RPM, switch on electrical fuel pump, wait until proper engine operation, then idle PWR, electrical pump off.

## 6. Before Take Off

- Seat Belts.....FASTENED
- Doors.....CLOSED
- Instruments ..... CHECKED/SET
- Transponder .....AS REQUIRED
- Engine Instruments..... CHECKED
- Fuel Quantity..... CHECKED
- Master Switch..... ON
- Ignition ..... 1+2
- Trim ..... SET
- Prop Lever ..... FULL FORWARD
- Mixture..... RICH
- Flaps ..... 0° (10° for short field)
- Cowl Flap ..... OPEN
- Fuel Valve ..... BOTH
- Control Surfaces .....FREE MOVEMENT IN ALL DIRECTIONS
- Landing Light ..... ON

**7. Take Off & Initial Climb**

**FULL THROTTLE    RPM 2700    MIXTURE RICH**

**When Takeoff field elevation is above 3000', lean engine for max RPM or FF placharded**

<b>FULL RICH until 3000' or max RPM</b>	<b>MAX PWR</b>	<b>Mixture</b>
	sea	17
	3000	16
	4000	15
	6000	14
	8000	13
	12000	10

**NORMAL T/O (flap 0-10)**

<b>Throttle</b>	<b>T/O PWR</b>
Check eng param.	40
Lift Nose	65
Lift off	70
CLIMB spd	80
Brake wheel	GEAR UP
Spd 80	FLAP UP

**SHORT FIELD T/O (flap 10)**

<b>Throttle</b>	<b>T/O PWR</b>
Check eng param.	40
Lift Nose	62
Lift off	70
CLIMB spd	72 (until obst.)
Brake wheel	GEAR UP
Spd 80	FLAP UP

**Climb Speeds: NORM 80, Best Angle 77, Best Rate 94, En Route 100**

**NORMAL CLIMB**

<b>MP 25</b>	<b>RPM 2500</b>	<b>MIXTURE</b>
↓		4000    13
		6000    12
until full		8000    11
Throttle		12000    8

**MAX PERF. CLIMB**

<b>FULL THROTTLE</b>	<b>RPM 2700</b>	<b>MIXTURE</b>
		3000    17
		4000    15
		6000    14
		8000    13
		12000    10

**Monitor engine parampeters, operate COWL FLAPS, check FF, EGT, CHT.  
(MAX EGT 1526 F, CHT NORM 200-470, OIL TMP 100-240)**

**8. Cruise**

- Set PWR.....75% or below
- Use PWR setting table (or lean MAX EGT then enrich by 50°F)

**Monitor engine parampeters, operate COWL FLAPS, check FF, EGT, CHT.  
(MAX EGT 1526 F, CHT NORM 200-470, OIL TMP 100-240)**

## CRUISE POWER SETTING

PWR LESS THEN 75%, FF STD +20 -> -0,2, STD -20 ->+0,2

Best econ. FF -0,5

RPM	MP	GPH	KTAS	Range/endurance	RPM	MP	GPH	KTAS	Range/endurance	RPM	MP	GPH	KTAS	Range/endurance
2000 (STD 11°C)					4000 (STD 7°C)					6000 (STD 3°C)				
<b>2100</b>	<b>19</b>	<b>6,7</b>	<b>112</b>	<b>885/7,0</b>	<b>2100</b>	<b>19</b>	<b>6,9</b>	<b>115</b>	<b>870/7,0</b>	<b>2100</b>	<b>19</b>	<b>7,0</b>	<b>119</b>	<b>880/7,1</b>
	21	7,5	119	860/6,7		21	7,6	123	860/6,5		21	7,8	127	875/6,7
	23	8,3	125	835/6,0		23	8,5	129	840/5,8		23	8,7	133	850/6,2
2500	23	10,1	138	745/4,6	2500	23	10,4	142	750/4,7	2500	22	10,1	142	765/4,8
8000 (STD -1°C)					10 000 (STD -5°C)					12 000 (STD -9°C)				
<b>2100</b>	<b>19</b>	<b>7,2</b>	<b>123</b>	<b>885/7,0</b>	<b>2100</b>	<b>19</b>	<b>7,4</b>	<b>126</b>	<b>895/6,8</b>	2100	18	7,1	125	905/7,2
	21	8,0	130	875/6,3		20	7,7	131	890/6,5	<b>2200</b>	<b>18</b>	<b>7,5</b>	<b>130</b>	<b>905/6,6</b>
	22	8,4	134	860/6		20	5,2	134	880/6,1					
2500	22	10,4	<b>147</b>	785/4,9	2500	20	9,5	144	835/5,3	2500	18	8,6	140	880/5,8

**MAX EGT 1526 F, CHT NORM 200-470, OIL TMP 100-240**

**alternate leaning procedure: lean until MAX EGT then enrich +50°F**

## 9. Descent

Avoid continuous operation between 1400-1700 RPM if MP is less than 10 inch. Hg.

- MIXTURE ..... RICH
- COWL FLAP ..... CLOSE AS REQUIRED
- FUEL CALVE ..... BOTH

## 10. Before Landing

- Entering TRAFFIC PATTERN
  - SPEED ..... below 90
- Beginning descend for LANDING
  - LND Gear ..... DOWN (max 144)
  - Flap ..... 10°
  - Speed ..... 80
  - Cowl Flap ..... OPEN
  - Fuel Valve ..... BOTH
  - LND Gear ..... GREEN IND.
- On FINAL
  - Flap ..... 20°
  - Prop LVR ..... HIGH RPM (MP below 15)
  - Mixture ..... RICH
  - Landing Light ..... ON
  - Speed ..... 80

### DO THE LANDING CHECKLIST

- If LANDING is assured
  - Flap ..... 30°
  - Speed ..... 80
- GO AROUND
  - Power ..... FULL
  - Flap ..... 20°
  - Speed ..... 75
  - Positive rate ..... GEAR UP
  - Flap ..... 10 then UP
  - Speed ..... 80

SET CLIMB POWER SETTING (25/2500/RICH)

## 11. After Landing

- Flap ..... UP
- Transponder .....STBY
- Landing Light ..... OFF
- Taxi Light ..... ON
- Strobe ..... OFF

## 12. Shutdown

- Engine Cooldown ..... 1000 RPM IF APPLICABLE
- Parking Brake..... SET
- Electrical Equipement ..... OFF
- Mixture.....CUTOFF
- Ignition ..... OFF
- Navigation Light..... OFF
- Beacon..... OFF
- Master Switch..... OFF



<b>SPEEDS</b>	<b>MPH</b>		<b>KIAS</b>	
Lift nose wheel	65		57	
Short field flap 10	75		62	
Best angle	77		67	
Best rate	94		82	
Normal climb	75-85		65-75	
Cruise climb	98-115		85-100	
Never exceed	200		174	
Turbulent speed	163		142	
Flaps extended 10	150		130	
Flaps extended 20-30	110		95	
Landing gear operation	144		125	
Landing gear extended	144		125	
Max window open	121		105	
Normal app. Flaps up	80-92		70-80	
Best glide	75-86		65-75	
Approach flap 10	69-80		60-70	
Approach flap 20-30	69-80		60-70	
Short field flap 30	72		63	
Go around flap 20	75		65	
Stall	<b>BANK</b>		<b>0°</b>	
			<b>30°</b>	
Flap up	68	59	72	63
Flap 10	63	55	68	59
Flap 30	58	50	62	54

<b>MAX TAKEOFF WEIGHT</b>			<b>1270 kg</b>
Empty weight			<b>772 kg</b>
Max load			<b>498 kg</b>
Max baggage			<b>55 kg</b>
Max comp. 1			<b>55 kg</b>
Max comp. 2			<b>23 kg</b>
Max Fuel	230 l	61 Usg	<b>184 kg</b>
	166 l	44 Usg	<b>133 kg</b>
Usable	227 l	60 Usg	<b>181 kg</b>
	162 l	43 Usg	<b>130 kg</b>
30 min reserve	18 l	5 Usg	

## EXAMPLE

**MAX TAKE OFF WEIGHT 1270 KG MAX LOAD 498 KG**

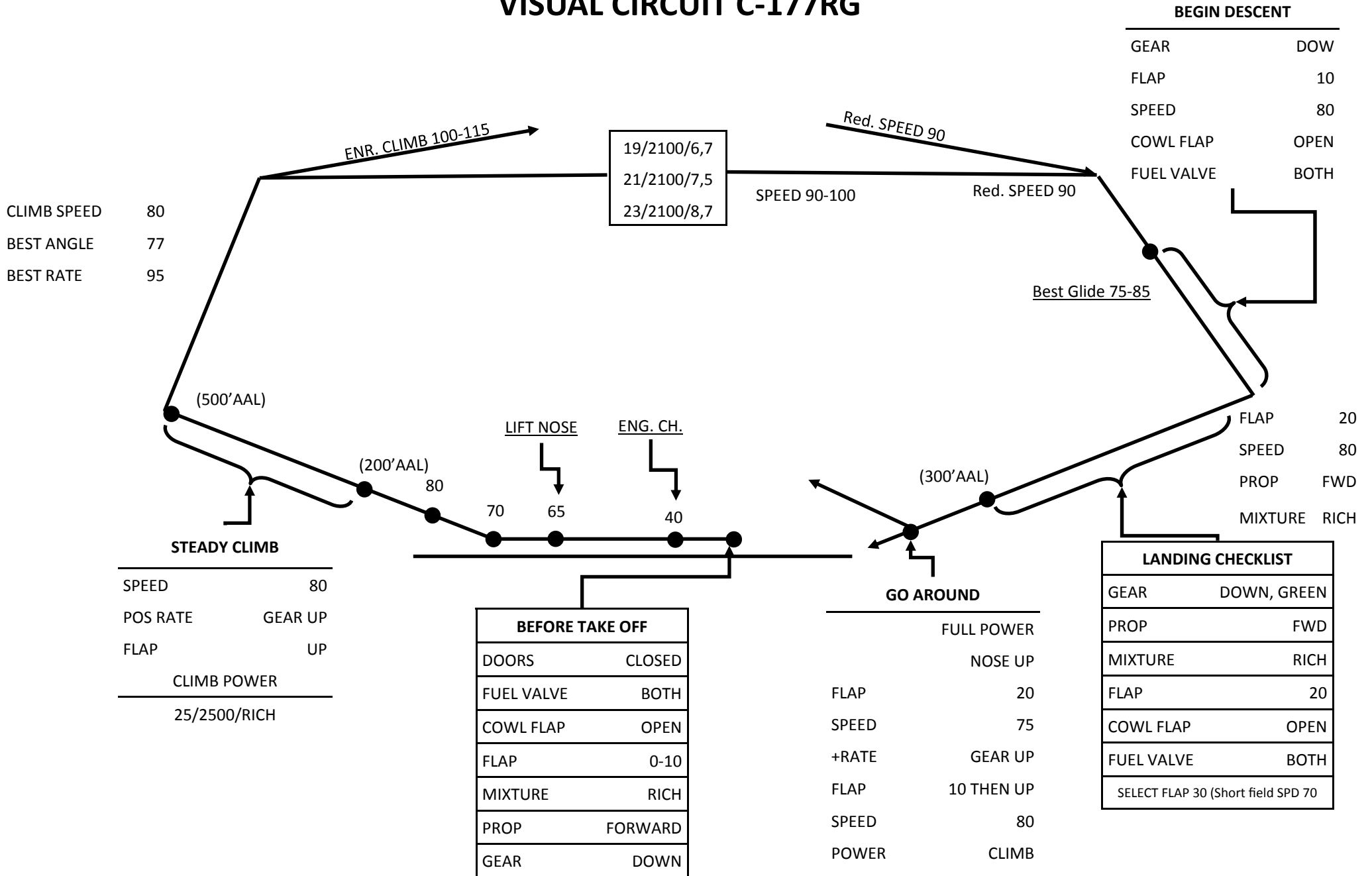
Person	Weight	Luggage	Fuel			Total load
1	80 kg	234 kg	230 l	61 Usg	184 kg	498 kg
2	160 kg	154 kg	230 l	61 Usg	184 kg	498 kg
3	240 kg	74 kg	230 l	61 Usg	184 kg	498 kg
4	320 kg	-	214 l	56 Usg	171 kg	496 kg

### CRUISE ALTITUDE FUEL 60 USG TIME AND DISTANCE

6000'	Engine check + taxi	Climb	Cruise 21/2100/7,8 127	Descend 120	Remaining	Total
<b>Fuel</b>	1,4	2 Usg	50,9 Usg	0,7 Usg	4+1	60 Usg
<b>Time</b>		8 min	6h 30 min	8 min		6h 46 min
<b>Distance</b>		11 Nm	825 Nm	16 Nm		825 Nm
<b>10 000'</b>						
<b>Fuel</b>	1,4	3,6 Usg	49 Usg	1 Usg	4+1	60 Usg
<b>Time</b>		16 min	6h 20 min	15 Min		6h 51 Nm
<b>Distance</b>		22 Nm	825 Nm	30 Nm		878 Nm

ALL SPEEDS ARE IN MPH

# VISUAL CIRCUIT C-177RG



**BEGIN DESCENT**

GEAR	DOW
FLAP	10
SPEED	80
COWL FLAP	OPEN
FUEL VALVE	BOTH

FLAP	20
SPEED	80
PROP	FWD
MIXTURE	RICH

**STEADY CLIMB**

SPEED	80
POS RATE	GEAR UP
FLAP	UP
CLIMB POWER	
25/2500/RICH	

**BEFORE TAKE OFF**

DOORS	CLOSED
FUEL VALVE	BOTH
COWL FLAP	OPEN
FLAP	0-10
MIXTURE	RICH
PROP	FORWARD
GEAR	DOWN

**GO AROUND**

FULL POWER	
NOSE UP	
FLAP	20
SPEED	75
+RATE	GEAR UP
FLAP	10 THEN UP
SPEED	80
POWER	CLIMB

**LANDING CHECKLIST**

GEAR	DOWN, GREEN
PROP	FWD
MIXTURE	RICH
FLAP	20
COWL FLAP	OPEN
FUEL VALVE	BOTH
SELECT FLAP 30 (Short field SPD 70)	