

VFR Private Pilot – Aviation Acronyms

91.103: Preflight Action

N	Notams
W	Weather
K	Known ATC Delays
R	Runway Lengths
A	Alternatives
F	Fuel Requirements – 91.167
T	Take-Off Data

91.205: Required Equipment and Instruments

VFR Day:

A	Altimeter
T	Tachometer
O	Oil Pressure Gauge
M	Manifold Pressure Gauge
A	Airspeed Indicator
T	Temperature Gauge (for liquid cooled)
O	Oil Temperature Gauge (for air cooled)
E	ELT (Emergency Locator Transmitter)
F	Fuel Gauges
L	Landing Gear Indicator Lights
A	Anti-Collision Lights (after 3/11/96)
M	Magnetic Compass
E	Emergency Equipment (Floatation equipment)
S	Seat Belts

VFR Night:

F	Fuses
L	Landing light (if for Hire)
A	Anti-Collision Lights
P	Position Lights (NAV Lights)
S	Source of Electrical Power

91.159 VFR Cruising Altitudes:

Above 3,000' AGL and Below 18,000 MSL:

0° to 179° - Odd Altitudes +500'

180° to 359° - Even Altitude +500'

91.409: Inspections

A	Annual & Airworthiness Directives (AD's – Recalls)
V	VOR check – 30 calendar days
I	Inspections – 100 hour/Annual/Progressive
A	Altimeter – 24 Calendar Months
T	Transponder – 24 Calendar Months
E	ELT – 12 Calendar Months (1 hr cumulative use and/or ½ shelf life of battery)
S	Static Source – 24 Calendar Months

91.203 Certificates and Documents on board

A	Airworthiness certificate which must be visible to flight crew (valid as long as all AD's and inspections are done)
R	Registration certificate which is valid until "30 FT Duc"
R	Radio Station License if operated outside USA
O	Operator's handbook (POH) specific to aircraft by serial number
W	Current weight and balance reflecting all equipment on board.

Registration becomes invalid

30	After 30 days of death of owner
F	Foreign Registration
T	Transfer to new owner
D	Destroyed
U	Loss of USA citizenship
C	Cancelled from owner

91.213 Minimum Equipment List: MEL

1. Aircraft Manufacturer sends proposed master MEL to Flight Operations Evaluation Board (FOEB)
2. Aircraft Manufacturer and FOEB lawyers go back and forth until a master MEL is agreed upon.
3. Master MEL is sent to all FSDO's.
4. Operators can then adopt the MEL or make it more restrictive.
5. If operators choose to make the MEL more restrictive, they can send their request to the local FSDO to obtain a letter of authorization (LOA).
6. The MEL and the LOA together make up the Supplemental Type Certificate for that aircraft.
7. MEL + LOA = Supplemental Type Certificate (STC).

Personal Checklist Before Flight

I	Illness
M	Medical
S	Stress
A	Alcohol
F	Fatigue (Chronic/Acute)
E	Emotions <i>or eating</i>

What a Pilot Needs for Flight:

Valid Pilot License
Current and Appropriate Medical Certificate
Current Federal/State Issued Photo ID
Flight Review/FAA Checkride w/in preceding 24 calendar months
3 T.O/Landings (to a full stop at night) w/in 90 days – 61.57(b)

Types of Airspeed

I	Indicated	Read off Instruments
C	Calibrated	IAS corrected for position and Installation Error
E	Equivalent	CAS corrected for adiabatic compressible flow greater than 180 knots
T	True	EAS corrected for non-standard pressure and temperature

Airspeed Errors

Position Error – Caused by static ports sensing erroneous static pressure due to slipstream.

Density Error – Due to changes in altitude and temp for which the instrument does not compensate for.

Compressibility Error – Begins to occur above 180kts. Air is packed into the pitot tube resulting in higher than normal airspeed.

Types of Altitude

I	Indicated	Read from Instruments
P	Pressure	Altitude above standard datum plane
D	Density Pressure	altitude corrected for non-standard temperature
A	Absolute	AGL
T	True	Altitude of aircraft above MSL.

91.171 - Required Information on VOR Checks

Each person making the VOR operational check shall enter the Date, Place, Bearing Error, Signature in the log. "Dog Poop, Bear Shit"

91.171 - VOR Tests

- 1. Bench Test ± 4 (360 From)
- 2. VOT ± 4
- 3. Ground Check ± 6
- 4. Airborne Check ± 6
- 5. Dual VOR Check 4 Degree Maximum Variation
- 6. Made-up Airborne Check ± 6

Compass Errors

- V Variation – difference between true north and magnetic north.
- D Deviation – due to magnetic field of aircraft.
- M Magnetic Dip – gets closer to north pole.
- O Oscillation – due to turbulence or rough control.
- N Northerly Turning Errors (UNOS) – undershoot north and overshoot south
- A Acceleration/Deceleration Errors (ANDS) – accelerate north and decelerate south

Time, Speed & Distance

NDB/ADF Tracking Formula:

Time to Station = $\frac{60 \times \text{Minutes Flown}}{\text{Degrees of Bearing Change}}$

MH + RB = MBTO
My Hot Red Balls Makes Babies Too!

Distance to Station = $\frac{\text{TAS} \times \text{Minutes Flown}}{\text{Degrees of Bearing Change}}$

Weather Information Table

WEATHER REPORTS	ISSUED	AGE WHEN RECEIVED	VALID PERIOD
Aviation Routine Weather Report (METAR)	Hourly (50-55 min past hr)	Up to 30 minutes	Until next METAR or SPECI is issued
Radar Weather Reports (SD)	Hourly (35 min past hr)	Approx 20 minutes	Until next SD is issued
Pilot Weather Reports (PIREP)	As Observed	Few Minutes	Observed Data
Terminal Aerodrome Forecast (TAF)	00Z, 06Z, 12Z, 18Z	Forecasted Data	24 Hour Forecast
Winds and Temperature Aloft Forecast (FD)	00Z, 12Z	Forecasted Data	Valid period is stated on the forecast
Area Forecast (FA)	0045Z, 0845Z, 1645Z	Forecasted Data	Synopsis 18 hrs., Forecast 12 hrs, Outlook 6 hrs.
Airmets (WA)	Every 6 hours	Observed with Forecasted Data	Max forecast period is 6 hrs. 2Z, 8Z, 14Z, 20Z
Sigmets (WS)	When specific SIGMENT phenomena occur	Observed with Forecasted Data	Max forecast period is 4 hrs.
Convective Sigmets (WST)	Hourly (55 minutes past hr)	Few Minutes	Until next WST or 2 hrs. Outlook in 2-6 hours.

Airmets (WA)

Airmets are issued every 6 hours on a scheduled basis. Issued for the following phenomena which are potentially hazardous to aircraft:

- Z: Moderate Icing (Freezing Level)
- T: Moderate Turbulence
Sustained Surface Winds of 30 knots or Greater
- S: Extensive Mountain Obscurement
Widespread areas of ceilings less than 1000 feet and/or visibility less than 3 miles.

Sigmat (WS) (Weird Stuff)

Sigmets are issued as needed and are good for 4 hours. Alphabetic designators November – Yankee except for Sierra and Tango) are only used for Sigmets. Volcanic eruptions are identified with a alphanumeric designator.

Issued when the following phenomena occur or are expected to occur:

- Severe or extreme turbulence not associated with a thunderstorm
- Severe icing not associated with a thunderstorm
- Dust storms, sandstorms, or volcanic ash lowering flight visibility to less than 3 miles
- Volcanic eruptions.

Convective Sigmets (WST) (Weird Stuff Thunderstorms)

Convective Sigmets are issued hourly at H+55, or as needed. They contain a forecast but may also contain a nowcast. Severe or greater turbulence, severe icing, and low-level wind shear are all implied and therefore not specified. Good for 2 hours unless superseded by the hourly issuance. Issued for any of the following phenomena:

Severe Thunderstorms due to:

- Surface winds greater than or equal to 50 knots.
- Hail at the surface $\frac{3}{4}$ on an inch or greater in diameter
- Tornadoes
- Embedded Thunderstorms
- Lines of Thunderstorms
- VIP Level 4 or greater thunderstorms that cover 40% of an area at least 3000 square miles.

Class E Airspace

S	Surface Area
E	Extension Area
T	Transition Area
V	Victor Airway
O	Offshore
D	Domestic Enroute
A	All other (Above Golf and above FL600)

Special Use Airspace

W	Warning Area
C	Control Fire Zone
R	Restricted (with permission)
A	Alert
M	Military Operation Area (MOA's)
P	Prohibited (never!)

Other Airspace

ADIZ
Temporary Flight Restrictions (TFR's)
Terminal Radar Service Area (TRSA)
VFR Corridors
VFR Transitions
VFR Flyways

Special Flight Permit

1. Fly Aircraft to repair station.
2. Delivering or exporting and aircraft.
3. Flight Tests.
4. Evacuating aircraft from areas of impending danger.
5. Customer demonstrations.

ADIZ

DVFR or IFR flight plan is required to go into, within, or across the ADIZ

2 way radios

Mode C transponder

A DVFR flight plan must be filed at least 15 minutes prior to arriving at the ADIZ when outbound and at least 60 minutes prior to arriving inbound.

Military Training Routes (MTR)

If identified with a 3 digit number, the route is greater than or equal to 1500 AGL.

If identified with a 4 digit number, the route is less than or equal to 1500AGL.

Illusions in Flight (AIM 8-1-5)

I	Inversion	Climb to straight and level – tumbling backwards
C	Coriolis	Head movements in prolonged turns.
E	Elevator	Updraft/Downdraft, causes pilot to pitch-up or pitch-down.
F	False Horizons	Sloping cloud formations, and obscured horizon, etc.
L	Leans	Banking illusion, rely on inner ear instead of instruments.
A	Autokinesis	Static light will appear to move when stared at.
G	Graveyard Spiral	Constant rate turn, losing altitude, pilot pulls up.....worse.
G	Graveyard Spin	After recovery from spin, pilot feels spinning is opposite direction....returns to spin.
S	Somatogravic	Rapid Acceleration/Deceleration – nose-up/nose-down.

Landing Illusions

R	Runway Width	Rain – Greater Height
R	Runway & Terrain Slopes	Haze – Greater Distance
F	Featureless Terrain	Fog – Pitching up
A	Atmospheric Illusions	
G	Ground Lighting	

Scuba Diving

Less than or equal to 8000MSL – 12 hr wait with a “nondecompression stop dive” – 24 hr wait for “decompression stop dive”

Greater than or equal to 8000MSL – 24 hr wait for both

91.211 Supplemental Oxygen Requirements

12,500 – 14,000	Oxygen needed for greater than 30 minutes
> 14,000	Required flight crew must use for entire flight
> 15,000	Occupants must be supplied with oxygen

Airport Beacons:

24 – 30 Flashes per Minute
White/Green – lighted land airport
White/Yellow – lighted water airport
White/White/Green – lighted military airport

Airport Lighting Systems:

REIL – Runway End Identifier Lights
HIRL - High Intensity Runway Lights
MIRL - Medium Intensity Runway Lights
LIRL - Low Intensity Runway Lights

Runway Edge Lights:

Edge lights are white. IFR runways have yellow lights for the last 2000 ft or half the runway, whichever is less. This is a caution zone. End lights emit red light toward the runway to indicate the end of the runway.

Taxiway Edge Lights – Blue

Taxiway Center Lights – Green

Hypoxia – AIM 8-1-2 Symptoms include Cyanosis (blue fingernails and lips), headache, decreased reaction time, impaired reaction time, impaired judgment, euphoria, visual impairment, drowsiness, lightheaded or dizzy sensation, tingling in fingers and toes, numbness.

Hypoxic Hypoxia - Inadequate supply of oxygen
 Hypemic Hypoxia- Inability of the Blood to carry oxygen (i.e. smoking at high altitudes)
 Stagnant Hypoxia - Inadequate Circulation of oxygen (i.e., heart problem or excessive "G"s)
 Histotoxic Hypoxia - Inability of the Cells to effectively use oxygen (i.e., alcohol)

Hyperventilation – AIM 8-1-3

Lack of carbon dioxide in the body. – Symptoms are similar to hypoxia and include headache, decreased reaction time, impaired reaction time, impaired judgment, euphoria, visual impairment, drowsiness, lightheaded or dizzy sensation, tingling in fingers and toes, numbness, a pale, clammy appearance, and muscle spasms.

Carbon Monoxide Poisoning in Flight – AIM 8-1-4

Colorless, odorless, and tasteless gas contained in exhaust fumes. Significantly reduces the ability of blood to carry oxygen. – Symptoms include headache, blurred vision, dizziness, drowsiness, and loss muscle power.

AIRSPACE

CLASS	ALTITUDES	WX MINIMUMS	EQUIPMENT	RATINGS	MAX AIRSPEED
A	FL180->FL600	N/A	TRANS-C; "IFR Equipment"	Private - IFR	Mach 1
B	SFC -> 10,000MSL	3SM - Clear of Clouds	TRANS-C; 2-Way Radio Clearance	Student (With Endorsement); Private	250 KIAS
C	SFC-> 4,000AGL (5NM); 1,200AGL ->4,000AGL (10 NM)	3SM & 1-5-2	TRANS-C; 2-Way Radio Positive Communication	Student	250 KIAS (200 KIAS Within 4 NM surface area up to 2,500 AGL)
D	SFC -> 2,500 AGL (4.4 NM)	3SM & 1-5-2	2-Way Radio - Positive Communication	Student	200 KIAS
E	700 AGL -> Overlying Airspace; 1,200 AGL -> Overlying Airspace	below 10,000 3 & 1-5-2; above 10,000 5 & 1-1	below 10,000-> N/A above 10,000-> TRANS	Student	below 10,000 250KIAS above 10,000 Mach 1
G	SFC -> 14,499 MSL	*See Chart	below 10,000-> N/A above 10,000-> TRANS	Student	below 10,000 50KIAS above 10,000 Mach 1

Class G Weather Minimums

Altitude	Day	Night
Below 1200 AGL	1 SM - Clear of Clouds	3 SM 1000, 500, 2000
Above 1200AGL, below 10000MSL	1 SM 1000, 500, 2000	3 SM 1000, 500, 2000
Above 1200AGL, below 10000MSL	5 SM 1000, 1000, 1000	5 SM 1000, 1000, 1000

AIRSPACE – VFR MINIMUMS

