

NORMAL START

Pre-Flight	<i>COMPLETE</i>
Documentation	<i>CHECK</i>
Ballast	<i>As Required</i>
Seat Belts	<i>Adjust and Lock</i>
Circuit Breakers	<i>Check All In</i>
Fuel Shutoff Valve	<i>Open</i>
Fuel Selector	<i>Select L or R Tank</i>
Backup Battery	<i>Off (Black Guarded Cover Down)</i>
Master	<i>On</i>
Avionics	<i>On. Pic of HOBBS. Radio, sync iPad, record, Flt plan, ATIS</i>
Strob and Nav Lights	<i>On and On</i>
Bilge Pump	<i>On Water / Off Land</i>
Main Fuel Pump	<i>On (Red Guarded Cover Up)</i>
Auxiliary Fuel Pump	<i>Off (Red Guarded Cover Down)</i>
Lane A and Lane B	<i>ON and ON</i>
Start Power Switch	<i>Hold, set 40% throttle</i>
Warning Lights	<i>ILLUM & OUT AFTER 3 SECS</i>
Engine Instruments	<i>FUEL PRESS 3 BAR (43.5 PSI)</i>
Brakes	<i>On</i>
Propeller Area	<i>Clear</i>
Starting Button	<i>Press until Engine Runs</i>
Throttle	<i>AS REQUIRED (2000 RPM)</i>
Engine Instruments	<i>CHK ERR MSGS & OIL PRES</i>
Auxiliary Fuel Pump	<i>On (Red Guarded Cover Up)</i>
Fuel Pumps Check	<ul style="list-style-type: none"> <i>Engine: 2000 RPM</i> <i>Main Pump: Off for 5 secs - No loss of power</i>
Main & Aux Pumps	<i>On & On (Red Covers Up)</i>
Throttle - Gen B check	<i>ENG 2500 RPM & HOLD 5 SECS</i>
Engine Instruments	<i>CHECK WARNING LAMPS AND OPERATING LIMITS</i>
Oil Pressure	<i>Check 29-73 PSI</i>
Pre-heating	<i>2000 RPM (2 min)</i>
Start fuel timer	

Green Limits

RPM	1800-5500
Oil Temp	194 – 230
Oil Press	29 – 73 PSI
Water Temp	122 – 248
Fuel Press	40.5 - 46.5 PSI
	2.8 – 3.2 Bar
EGT	1112 – 1650
Amp	0 - 18
Volt A&B	12 – 16

TAXI

Ground Taxi

Speed	<i>Low</i>
Brakes	<i>Check</i>
Rudder	<i>Check</i>
Taxi	<i>With Caution</i>
Landing Lights	<i>As Necessary</i>

Water Taxi

Landing Gear	<i>Up and Locked</i>
Bilge Pump	<i>ON</i>
RPM	<i>Min for Control</i>
Temps	<i>Monitor</i>
Landing Lights	<i>As Necessary</i>

Before Take Off Checklist

Seat Belts	<i>Fastened</i>
Fuel	<i>Check</i>
Brakes	<i>On (ground)</i>
Lane A and Lane B	<i>Caution: nose gear straight.</i>

- *4000 RPM*
- *Lane A Off <180 RPM*
- *Lane A On*
- *Lane B Off <180 RPM*
- *Lane B On*
- *RPM Idle*

Green Limits

RPM 1800-5500

Oil Temp 194 – 230

Yellow Min 122

Oil Press 29 – 73 PSI

Water Temp 122 – 248

Fuel Press 40.5 - 46.5 PSI

2.8 – 3.2 Bar

EGT 1112 – 1650

Amp 0 - 18

Volt A&B 12 – 16

Throttle Idle *1400 RPM minimum*

Engine Inst *Check, all Green*

Flight Controls *Check*

Elevator Trim *Land - top of green
Water - middle of green*

Auto Pilot *Off*

Main and Aux Fuel Pump *ON & ON (Red Covers Up)*

Landing Lights *On*

Runway and Pattern *Clear*

Doors *Check locked*

Water T/O:

Fly Away Obstructions

TAKE-OFF CHECKLIST

Start Fuel Timer

NORMAL

Before Take-Off Checklist	<i>COMPLETE</i>
Oil Temp	<i>MINIMUM 122°F</i>
Full Throttle	<i>READ 5000~5500 RPM</i>
Rotate Speed Vr	<i>40 KTS</i>
Max Climb Angle Vx	<i>55 KTS</i>
Climb Speed Vy	<i>60 KTS</i>
Gear	<i>UP when clear of runway</i>
Bilge Pump	<i>Off (Water)</i>
Landing Lights	<i>Off</i>
Engine Instruments	<i>Monitor</i>

Cruise

Max Power	<i>5800 rpm 6.3 gph 5 mins</i>
Max Continuous	<i>5500 rpm 4.7 gph</i>
Max Range	<i>5300 rpm 4.2 gph</i>
Max Endurance	<i>5000 rpm 3.4 gph</i>
Cross Country	<i>4800 rpm, 80 KTS, 3.7 gph</i>
Fuel Selector	<i>30 - 60 - 30 - 30</i>
Engine Instruments	<i>Check</i>
Speed	<i>97 KTS</i>

DESCENT

Descent

Throttle	<i>As Required</i>
Descent Rate	<i>As Required</i>
Speed	<i>60 - 97 KTS</i>

Ground Landing

Landing Gear - Ground	<i>70 KTS - Gear Down - Green</i>
Landing Lights	<i>On</i>
Throttle	<i>Level - 4300 RPM Abeam - 3300 RPM</i>
Approach Speed	<i>60 KTS - light wind</i>
Touch Down	<i>40 KTS</i>
Max Cross Wind	<i>12 KTS</i>

GROUND LANDING

Gear down for land
Handle Fwd - Land
Gear Down - Green

Runway Clear
Wind

60 KTS approach
40 KTS touchdown

After Landing and Shutdown

Transponder	<i>Standby</i>
Bilge Pump	<i>Off - Water</i>
Landing / Strob / Nav Lights	<i>Off / Off / Off</i>
Lane A and B	<i>Off and Off</i>
Main and Aux Fuel Pumps	<i>OFF and Off (Red Covers Down)</i>
Avionics	<i>Off. Pic of HOBBS.</i>
Master	<i>Off</i>

Water Landing

Landing Gear - Water	<i>Gear Up - Blue</i>
Landing Lights	<i>On</i>
Bilge Pump - Water	<i>On</i>
Throttle	<i>Level - 4300 RPM Abeam - 3300 RPM</i>
Approach Speed	<i>60 KTS - light wind</i>
Touch Down	<i>40 KTS</i>
Max Cross Wind	<i>12 KTS</i>

WATER LANDING

W – Winds / Waves
L – Landing Lane
N – Noise
O – Obstacles
T – Terrain

WATER LANDING

Gear Up for Water
 Handle Aft
 Gear Up – Blue
 Bilge Pump - On

 Area Clear
 Wind
 60 KTS Approach
 40 KTS Touchdown

After Landing and Shutdown

Transponder	<i>Standby</i>
Bilge Pump	<i>Off - Water</i>
Landing / Strob / Nav Lights	<i>Off / Off / Off</i>
Lane A and B	<i>Off and Off</i>
Main and Aux Fuel Pumps	<i>OFF and Off (Red Covers Down)</i>
Avionics	<i>Off. Pic of HOBBS.</i>
Master	<i>Off</i>

Instrument	Unit	Red Line Minimum Limit	Green Arch Normal Operation	Yellow Arch Variation with Caution	Red Line Maximum Limit
Tachometer	RPM	1400	1800–5500	1400–1800 5500–5800	5800
Oil temperature indicator	°C (°F)	50 (122)	90-110 (194-230)	50-90 (122-194) 110-130 (230-266)	130 (266)
Water Temperature (CHT)	°C (°F)	---	50-120 (122-248)	---	120 (248)
Oil pressure indicator	Bar (Psi)	0,8 (12)	2-5 (29-73)	0,8-2 (12-29) 5 – 7(73 – 102)	7 (102)
Fuel pressure indicator (If installed)	Bar (Psi)	2,4 (35)	2,8-3,2 (40,5-46,5)	2,4-2,8 (35-40,5) 3,2-3,4 (46,5-50)	3,4 (50)
Fuel Quantity	Liters	---	---	---	---
EGT (If installed)	°C (°F)	---	600-900 (1112-1650)	900-950 (1650-1742)	950 (1742)
Amperemeter (If installed)	A	(-) 6	(+) 0 – 18	(-) 0 – 6 (+) 18 – 29	(+) 30
Voltmeter A	V	12	12-16	---	---
Voltmeter B	V	12	12-16	---	---

Green Limits

RPM **1800-5500**
Oil Temp **194 – 230**
Oil Press **29 – 73 PSI**
Water Temp **122 – 248**
Fuel Press **40.5 - 46.5 PSI**
 2.8 – 3.2 Bar
EGT **1112 – 1650**
Amp **0 - 18**
Volt A **12 – 16**
Volt B **12 - 16**

EM: FIRE X = Immediate Action

ENG FIRE - START

X	Throttle Idle	<i>Idle</i>
X	Main & Aux Fuel Pumps	<i>Off & Off - (Red Guarded Covers Down)</i>
X	Lane A and B	<i>Off and OFF</i>
X	Master	<i>Off</i>
X	Fuel Shut Off Valve	<i>Closed</i>
X	Exit Aircraft	<i>Use the Extinguisher</i>

ENG FIRE - FLIGHT

X	Main & Aux Fuel Pumps	<i>OFF & OFF - (Red Guarded Covers Down)</i>
X	Lane A and B	<i>OFF and OFF</i>
X	Master	<i>OFF</i>
X	Throttle	<i>Idle</i>
X	Fuel Shut Off	<i>Closed</i>
X	60 KTS	
X	Safety Belts	<i>Tight</i>
X	Canopy	<i>Unlocked</i>
X	Landing Gear Ground	<i>Down - Ground</i>
X	Landing Gear Water	<i>Up Water</i>
X	Fuel Shut Off	<i>Closed</i>

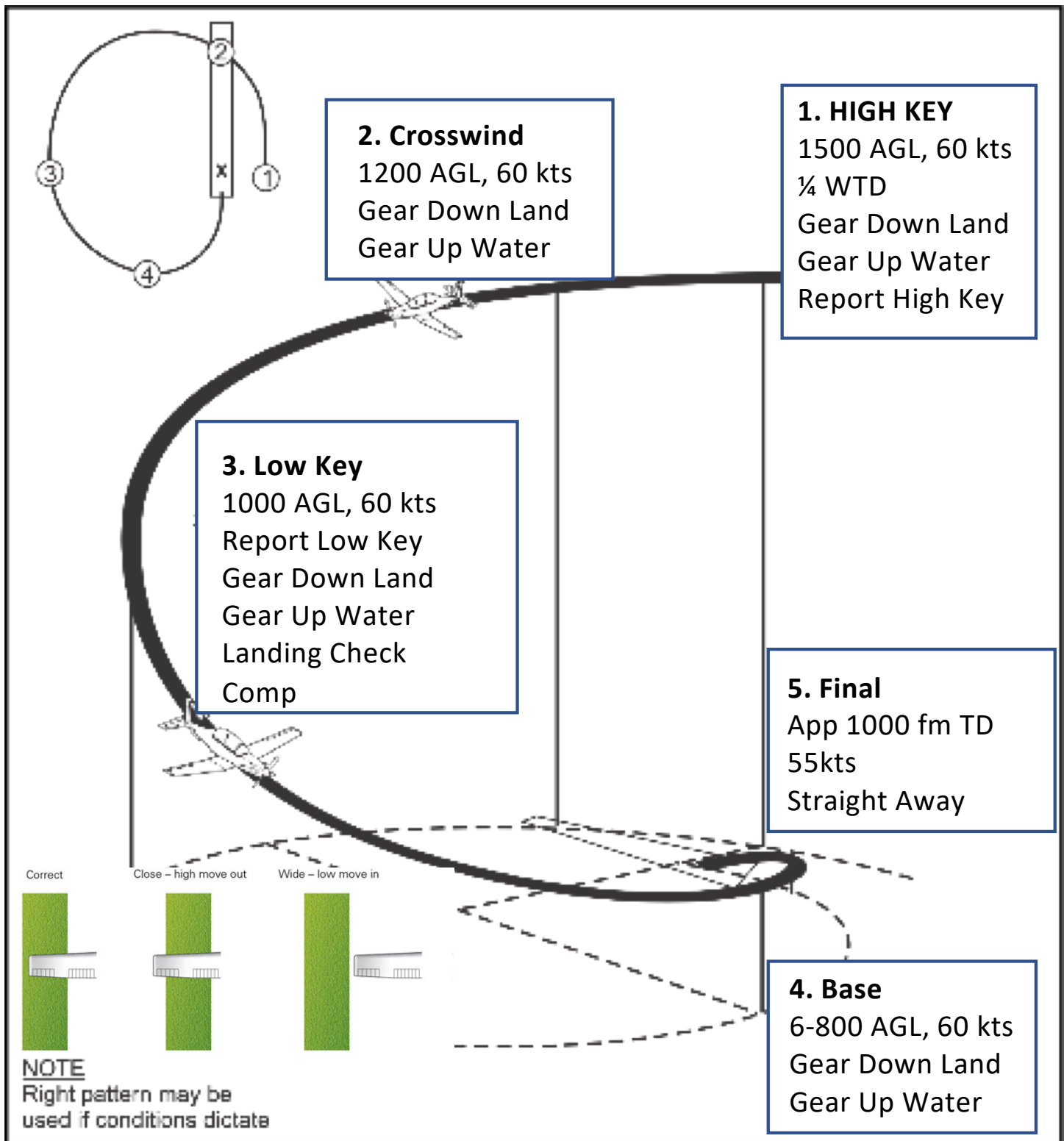
EM: ENGINE X = Immediate Action

LOSS OF ENGINE POWER IN FLIGHT

X	60 KTS	
X	SEARCH FOR SAFE LANDING	
X	FUEL SELECTOR VALVE	<i>FULLEST TANK</i>
X	BATTERY BACKUP	<i>ON - Switch Position Up</i>
X	Lane A and B	<i>ON and ON</i>
X	Main Fuel Pump	<i>ON - (Red Guarded Cover Up)</i>
X	AUX Fuel Pump	<i>OFF - (Red Guarded Cover Down)</i>
X	ATTEMPT STARTING ENGINE	
X	ENGINE NOT STARTING	<i>PROCEED WITH ENGINE OUT</i>
X	Safety Belts	<i>Tight</i>
X	Canopy	<i>Unlocked</i>
X	Landing Gear Ground	<i>Down - Handle Forward</i>
X	Landing Gear Water	<i>Up - Handle Aft</i>
X	Lane A and B	<i>OFF and OFF</i>
X	Main and Aux Fuel Pumps	<i>Off & OFF- (Red Guarded Covers Down)</i>
X	Master	<i>OFF</i>
X	Fuel Shut Off	<i>Closed</i>

EM: ENGINE X = Immediate Action

LOSS OF ENGINE POWER IN FLIGHT



STALL / SPIN X = Immediate Action

STALL

- | | |
|--------------------------------------|--|
| X Pitch Altitude and Angle of Attack | <i>DECREASE POSITIVELY AND IMMEDIATELY</i> |
| X THROTTLE | <i>INCREASE POWER SMOOTHLY</i> |
| X STRAIGHT AND LEVEL FLIGHT | <i>COORDINATED USE OF ALL CONTROLS</i> |

INADVERTENT SPIN

- | | |
|------------------------|---|
| X THROTTLE | <i>IDLE</i> |
| X AILERON AND ELEVATOR | <i>NEUTRAL</i> |
| X Rudder | <i>Opposite to Spin</i> |
| X CONTROL STICK | <i>NEUTRAL, UNTIL SPIN HAS STOPPED AND THEN APPLY ELEVATOR PITCH FOR LEVELED FLIGHT</i> |
| X THROTTLE | <i>SET FOR LEVEL FLIGHT</i> |

Land A and B Warning Lamps

Lane A OFF - Lane B FLASHING	<i>On Ground - one way flight to maint hangar permissible</i>
Lane A FLASHING - Lane A OFF	<i>In flight - flight possible to your own destination at own discretion</i>

Lane A and Lane B - any other combination of OFF, ON, and FLASHING	<i>On Ground - Flight not permissible If Flight - Land the aircraft</i>
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Loss of Oil Press

Throttle	<i>Minimum for level flight</i>
Land As Soon As Possible	

High Oil Press

Throttle	<i>Reduce Power</i>
Land As Soon As Practical	

Emergency Descent

Throttle IDLE	
55 KTS	
Landing Gear	<i>As Necessary</i>

OVERVOLTAGE

Circuit breakers are used in order to avoid any damage or overvoltage on the SUPER PETREL LS electrical system. *ALT position*

Failure of single EMS Power Supply

Failure of the EMS	<i>If the EMS power supplies (alternator A) fails then the ECU automatically switches one-time over to the second EMS power supply (alternator B)</i>
No charging of battery	<i>While alternator B runs, no power drop is recognizable</i>

EMS Voltage Supply below the Minimum Required Level

Limited flight operation is possible if the voltage (alternator A or B) is OK here

Proceed according to section 3.3.20 Failure of the EMS power supply, if this shows no effect

Reduce engine power setting to the minimum necessary and carry out precautionary landing

Land as soon as POSSIBLE

A maintenance inspection should be carried out

ICING

ICING

COURSE	<i>180 DEGREE HEADING CHANGE AND CONSIDER CHANGING ALTITUDE</i>
THROTTLE	<i>INCREASE</i>
FLIGHT	<i>FINISH AS SOON AS POSSIBLE</i>
APPROACH	<i>HIGHER SPEED THAN NORMAL</i>

Loss of Primary Instruments

Loss of Primary Instruments

Land as Soon As Practical

Loss of Flight Controls

Loss of Rudder

Speed 56 kts

Aircraft Control *Aileron*

Loss of Aileron

Speed 56 kts

Aircraft Control *Rudder*

Loss of Elevator

Speed 56 kts

Aircraft Control *Trim*

Loss of Power Throttle

Possible to keep flight altitude *Land As Soon As Practical*

Not Possible to keep flight
altitude *Land As Soon As Possible*

Landing Gear Failure

Main Down - Nose Up

Land on Grass, keep nose up
as long as possible

Main UP - Nose Down (not in book)

Land on Grass, keep nose up
as long as possible

Land on Water, keep nose up
as long as possible

Main and Nose retracted (WATER)

Land in Water

Main and Nose Extended (LAND)

Land on Grass or Pavement

Instrument	Unit	Red Line Minimum Limit	Green Arch Normal Operation	Yellow Arch Variation with Caution	Red Line Maximum Limit
Tachometer	RPM	1400	1800–5500	1400–1800 5500–5800	5800
Oil temperature indicator	°C (°F)	50 (122)	90-110 (194-230)	50-90 (122-194) 110-130 (230-266)	130 (266)
Water Temperature (CHT)	°C (°F)	---	50-120 (122-248)	---	120 (248)
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Fuel pressure indicator (If installed)	Bar (Psi)	2,4 (35)	2,8-3,2 (40,5-46,5)	2,4-2,8 (35-40,5) 3,2-3,4 (46,5-50)	3,4 (50)
Fuel Quantity	Liters	---	---	---	---
EGT (If installed)	°C (°F)	---	600-900 (1112-1650)	900-950 (1650-1742)	950 (1742)
Amperemeter (If installed)	A	(-) 6	(+) 0 – 18	(-) 0 – 6 (+) 18 – 29	(+) 30
Voltmeter A	V	12	12-16	---	---
Voltmeter B	V	12	12-16	---	---

Green Limits

RPM **1800-5500**
Oil Temp **194 – 230**
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Water Temp **122 – 248**
Fuel Press **40.5 - 46.5 PSI**
 2.8 – 3.2 Bar
EGT **1112 – 1650**
Amp **0 - 18**
Volt A **12 – 16**
Volt B **12 - 16**

12 **1.2. Summary of the Performance Specifications**

Gross Weight (MTOW)	1320 lbs (600 kg)	
(V _{NE}) Never Exceed Speed	130 mph (113 kts)	
(V _H) Maximum Cruise Speed at 5500 RPM at Sea Level	112 mph (97 kts)	
Full Fuel Range with 30 minute Day VFR reserves (as required by FAA)	75 % Power	4.2 US gal/h (16 liters/h) at 100 mph (86 kts) with 30 minute reserve yields 405 miles at Sea Level
	60 % Power	3.4 US gal/h (13 liters/h) at 90 mph (78 kts) with 30 minute reserve yields 455 miles at Sea Level
(V _x) Speed for best angle of climb	65 mph (56 kts)	
(V _y) Speed for best rate of climb	70 mph (61 kts)	
Stalling Speed	40 mph (35 kts)	
Total Fuel Capacity	25 US gal (95 Liters)	
Total Fuel Usable	24 US gal (91 Liters)	Left Wing 10 US gal (38 Liters) Right Wing 10 US gal (38 Liters)
		Header Tank 4 US gal (15 Liters)
Approved Fuel Types	Premium 91 Octane Minimum (R+N)/2 method or 100 LL AVGAS – No more than 10% Ethanol by volume (no ethanol in fuel preferable)	
Maximum Engine Power Output (Rotax 912 iS Sport)	Max Continuous Power: 97 hp (72 kW) at 5500 RPM	

2.1 *Airspeed Indicator Markings*

Speed indicator markings and their color coding meanings are shown below:

Markings	IAS value or range		Meaning
	MPH	Kts	
Green Arc	40-113	35-98	Normal operating range. Lower limit is maximum weight V_S at most forward C.G. Upper limit is maximum structural cruising speed.
Yellow Arc	113-130	98-113	Caution range. Maneuverings should be conducted with caution and smooth air only.
Yellow Triangle	68	59	Recommended approach speed
Red Line	130	113	Never Exceed Speed.

2.2 *Speeds Limitations*

Speed limitations and their operating meanings are shown below:

	Speed	IAS		
		MPH	Kts	
V_{NE}	Never Exceed Speed	130	113	Do not exceed this speed in any operation
V_{NO}	Normal Operation Limit Speed	112	97	Do not exceed this speed except in Smooth Air and then only caution
V_H	Maximum Cruise Speed	112	97	Such speed should never be exceeded in horizontal flight, when the engine is at maximum continuous RPM
V_A	Maneuvering Speed at Gross Weight	80	70	Total or abrupt control movements should not be made above this speed because under certain circumstances the aircraft can be tensioned over its limit
	Maneuvering Speed at Minimum Weight	76	66	
V_{LO}	Maximum Landing Gear Operating Speed	80	70	Do not exceed such speed for extending or retracting the landing gear

1320 MTOW water or land
810 empty weight
150 full gas
25 accessories
335 people and stuff

5 gal offload, 30 lbs, 365 people and stuff, 19 gal available, cost 1 hr endurance
10 gal offload, 60 lbs, 395 people and stuff, 14 gal available, cost 2 hr endurance

Full fuel: 25 Gals 150 lbs, 24 gal available
L 10 gal 60 lbs
R 10 gal 60 lbs
Header 5 gal 30 lbs, 4 gal available

Pilot, Passenger, Baggage max weight 432 lbs with full fuel load
Max baggage 66 lbs
Pilot + Pass: 366 lbs

CG: Pilot + Pass, luggage has no effect on CG
120-210 Full water, 44 lbs. <200 full
210-290 Half water, 22 lbs 200-300 Half
>290 lbs. empty >300 empty

I rounded all the numbers up or down to a 5 or a 0.

Stall	35 kts	40 mph
Rotate	40 kts	50 mph
Climb rate Vy	60 kts	70 mph 1000 fpm
Climb angle Vx	55 kts	65 mph

Gear speed	70 kts	
Approach	60 kts	70 mph
TD	40 kts	40 mph
Stall	35 kts	
Max cross wind	12 kts	
Short Field Ldg configuration)	45 kts	1.3 times VsO (stall speed with landing configuration)

All emergencies 60 kts

GROUND LANDING

“Gear Down for land”

Handle Fwd - Land

Gear Down - Green

Runway Clear

Wind

60 KTS approach

40 KTS touchdown

Print at 70%

WATER LANDING

“Gear Up for Water”

Handle Aft

Gear Up – Blue

Bilge Pump - On

W - Winds / Waves

L - Landing Lane

N - Noise

O - Obstacles

T - Terrain

Wind

60 KTS Approach

40 KTS Touchdown

<u>GROUND LANDING</u>	
"Gear Down for land" Handle Fwd - Land Gear Down - Green	Runway Clear Wind 60 KTS approach 40 KTS touchdown

<u>WATER LANDING</u>	W - Winds / Waves L - Landing Lane N - Noise O - Obstacles T - Terrain
"Gear Up for Water" Handle Aft Gear Up - Blue Bilge Pump - On	