Reims Aviation F-406 Caravan II of Hellenic Coast Guard for FS2K2



GENERAL

With more than 50 years experience in aeronautics design and construction, 7000 aircraft built and sold throughout the world in a 30 year period, Reims Aviation is today one of the European leaders in the aeronautics industries. The experience acquired as an aeronautics constructor for the F-406 twin engine turboprop and other single engine Cessna's aircrafts, participation for many years in the major civil and military programs with Dassault Aviation and Airbus Industrie, have allowed Reims Aviation to build up unique "know how". The mastery of the trade and its technological changes, allows Reims Aviation to guarantee solutions that meet its customer's expectations.

The first of three F-406s Caravan II maritime surveillance aircraft ordered by the Greek Coast Guards on December 2000. One year later, the aircrafts were handed over the responsibles for the Greek Merchant Navy. The mission equipment built in under the technical management of the Reims Aviation team includes a nose mounted FLIR turret, a 360° belly mounted search radar, an Infrared & Ultraviolet scanner and a SLAR antenna fitted in the rear cone. Installed together for the first time on an aircraft of this category, this equipment allows maritime surveillance, rescue and maritime pollution monitoring operations to be combined. Nineteen persons have been trained by Reims Aviation on this new platform. Acquisition of a 4th aircraft for the program continuation is currently under negociation process as well as spare parts, training of new crews and aging of the operators through a wide one year long planning.

This FS repaint version has been specifically created as an honor to the Hellenic Coast Guard aviators, who operate in the Aegean Sea for maritime surveillance, rescue and pollution monitoring purposes.

CREDITS

- Original aircraft model was made by Mr **Yann Koun** ykoun@free.fr
- Hellenic Coast Guard repaint, panel design, improoved flight dynamics, install / flight manual & screenshots by **Nick Karatzides** Nick_Karatzides@hotmail.com **OR** Pathfinder@mail.gr.
- Aircraft infos & data by Reims Aviation and Hellenic Coast Guard.

INSTALATION

- Create a new folder, and place it into C:\Program Files\Microsoft Games\FS2002\Aircraft and name it "**Reims F-406 Caravan II Hellenic Coast Guard**"
- Open the "Reims effects" folder, then COPY & PASTE its contents into destination C:\Program Files\Microsoft Games\FS2002\Effects. Overwrite any existing FS2K2 "fx" files with the same name if it is needed so. This will **NOT** harm your FS2002 system for other aircrafts! If you do not want to overwrite the existing FS2K2 "fx" files, backup them first.
- Open the "Reims gauges" folder, then COPY & PASTE its contents into destination C:\Program Files\Microsoft Games\FS2002\Gauges. Overwrite any existing FS2K2 "gau" files with the same name if it is needed so. This will **NOT** harm your FS2002 system for other aircrafts! If you do not want to overwrite the existing FS2K2 "gau" files, backup them first.
- Finally, COPY & PASTE all the other remaining folders & files into the destination C:\Program Files\Microsoft Games\FS2002\Aircraft\Reims F-406 Caravan II Hellenic Coast Guard.

Anyway, after a successfull aircraft installation in your FS2K2 system, you are now ready to start the simulation and go flying. In order to fly with this Reims Aviation F406 Caravan II aircraft, you must select it, under the manufacturer's name of "Reims Aviation" into the "Select Aircraft" menu of FS2K2 as it is shown in the following screenshot.

RELATED LINKS

http://www.reims-aviation-industries.com/
http://www.aeroservices.gr/reims/reimsindex.htm
http://koti.welho.com/msolanak/reims.html
http://www.benair.com/aircraft/oypbg.htm
http://www.reims-aviation-industries.com/f406abr.htm

KNOWN BUGS

There are known "bug" issues with this model, and I'll explain them to you, as best I can:

- No matter the Shift + E buttons are pressed, no aircraft exit or hatch is opened! This is a known bug which might caused by the model.cfg file contained in this F-406_HCG_v1.zip package.
- The "aircraft.cfg" and the aircraft's "air" file are both made in a way to simulate the damage on the landing gears, on the flaps and on the rudder, when they are used over the aircraft's normal flight envelope (overspeed or structure overstresed conditions). Unfortunately, it does not work all the times. So, I'm still trying to fix that!

NOTES

- This Hellenic Coast Guard's Reims Aviation F-406 Caravan II aircraft contained in this repaint F-406_HCG_v1.zip package is a fully compatible aircraft with FS2K2.
- This aircraft repaint package for FS2K2 is not meant to be artistically brilliant, but to give a faithful as possible rendition of what it is like to fly this aircraft. It is also frame rate friendly.
- Hellenic Coast Guard's Reims Aviation F-406 Caravan II aircraft repaint archive for FS2K2 is a **STRICTLY FREEWARE ONLY!** NO COMMERCIAL GAIN BY ANYONE COULD BE ACCEPTABLE BY ME. The Reims Aviation F-406 Caravan II aircraft repaint package should **NOT** UNDER ANY CIRCUMSTANCES be uploaded or displayed on payware FS sites or **ANY** of its associated subsidiaries. If it is, or available on any website offering this archive in return for money, any appropriate legal action will be undertaken using all the appropriate International copyright laws.
- The repainter of this package is in no way liable for any damage it may cause from incorrect use (however unlikely that it may be).
- If you have any questions & comments, bug reports etc, please feel free to send to my E-mail address Nick_Karatzides@hotmail.com **OR** Pathfinder@mail.gr.
- This Hellenic Coast Guard's Reims Aviation F-406 Caravan II repaint (original model by Yann Koun) should **NOT be uploaded to ANY InterNet site without the repainter's written comfirmation**.
- Finaly, F-406_HCG_v1.zip package should **NOT** under **ANY** circumstances be uploaded in FSPlanet.com, because this site is **NOT** freeware and the site moderator named Ferdy Serena, makes money and never ask any permision before uploading any file. You have to know that this man is selling you this FS repaint which is already freeware in other FS file libraries. Considering these, **SHAME on Ferdy Serena, SHAME on FSPlanet.com for this behavior**..


ΑΙΜΕΝΙΚΟ
ΣΔΜΑ

Reims Aviation F-406 Caravan II
flight manual for use in FS2K2

GENERAL

This flight manual is made NOT to give you the knowledge to fly the real aircraft, but to be able to simulate a **typical turboprop powered** Reims F-406 Caravan II behavior in a FS2K2 enviroment. No matter this Reims F-406 Caravan II model for FS2K2 is made and test to fly and behave as close to a real Search And Rescue light aircraft flight envelope (Microsoft says...), you must NOT attemp to use these informations included in this FS2K2 flight manual to fly **ANY** aircraft in real situations!!!

WARNING

The author has NO responsibility if FS2K2 tactics explained in the present flight manual will be considered as real aviation tutorials and be the reason of an aviation accident, leathal injury or death. These information are for Microsoft Flight Simulator use ONLY

FLIGHT STAGES

The stages you can follow in a FS2K2 flight and will be explained to you, are the following:

- Starting up the engines,
- Applying power,
- Taxiing to the line,
- Before take off preparations,
- Take off procedures,
- Climbing,
- Fuel balance & aircraft triming,
- Descending,
- Landing,
- Go arround & emergency situations,
- Engine shutdown,
- Unusual situation flying,
- Engines & systems limitations.

AIRCRAFT DATA & SPECIFICATIONS

Reims Aviation F-406 Caravan II specifications

Type:	Twin engine executive turboprop aircraft
Role:	Search And Rescue & transport aircraft
Manufacturer:	Reims Aviation / Cessna
Engine:	2 x P&W Pratt & Whitney PT6A112 turboprop
Take-Off power:	2 x 500 shp / 373 kW at 1900 RPM
Propeller:	3 blade, constant speed full feathering reverse
Overall length:	39 ft 1 in / 11.89 m
Overall height:	13 ft 1 in / 4.01 m
Wing span:	49 ft 6 in / 15.08 m
Wing area:	23.48 sq.m
Wing loading:	181 kg per sq.m
Power loading:	4.19 kg per sq.cm
Weight:	9925 lbs / 4502 kg maximum weight 9850 lbs / 4468 kg maximum take off weight 9361 lbs / 4246 kg maximum landing weight 8501 lbs / 3856 kg maximum zero fuel weight 5033 lbs / 2283 kg standard empty weight 4892 lbs / 2219 kg maximum usefull load
Fuel capacities:	474 US gal / 3225 lbs / 1463 kg (maximum) 468 US gal / 3183 lbs / 1444 kg (usable)
Oil capacity:	2.3 US gal / 15.6 lbs / 7.1 kg / 8.7 lt per engine
Maximum cruise speed at sea level:	246 KIAS / 456 km/h
Maximum operating speed (VMO):	230 KIAS / 426 km/h
Minimum control speed (VMCA):	90 KIAS / 167 km/h
Maneuvering speed (VA):	163 KIAS / 302 km/h
Maximum flap ext speed (VFE):	200 KIAS / 370 km/h
Maximum landing speed (VLE):	180 KIAS / 333 km/h
Stall speed (gear & flaps up):	105 KIAS / 194 km/h
Stall speed (gear & flaps dwn):	75 KIAS / 139 km/h
Rate of climb:	2550 ft/min (when both engines are running) 1300 ft/min (when only one engine is running)
Service ceiling:	45000 ft (when both engines are running) 25200 ft (when only one engine is running)
Load factor:	3.60 Gs / -1.44 Gs (when weight is 4216 kg) 3.31 Gs / -1.37 Gs (when weight is 4468 kg)
Maximum range:	1153 nm / 2135 km (with standard fuel)
Endurance:	7 hours and 5 minutes
Crew / pilots:	2 pilots and up to 12 passengers
Year of deploy:	1984

COCKPIT PANEL & CONSOLES

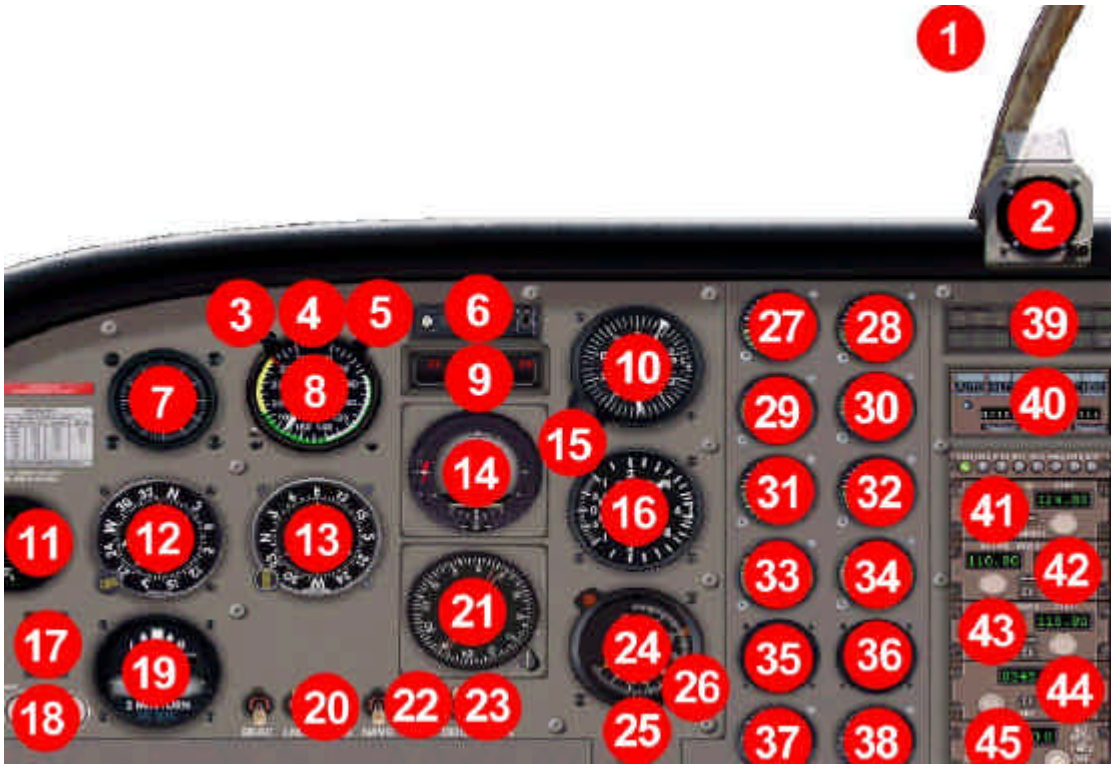
This F-406_HCG_v1.zip package you've downloaded from the InterNet, also contains a panel whitch had been modified by photos and diagrams of the real one. Some of the FS2K2 virtual pilot's actions on this panel, effects on this Reims F-406 Caravan II aircraft model in FS2K2, just like as real pilot's actions on the real aviation. The panel consists by three (3) screens. To activate / de-activate each one of the following screens you must press Shift + 2 or Shift + 3. Additionaly you can use one of the following buttons on the panel to activate / de-activate each one of the screens.

Button A Button B Button C

- The Main panel contains the main panel with most of the aircraft's flight instruments,
- The Throttle panel (FS default) which switch ON / OFF by pressing Shift + 2.
- The Compass panel, which switch ON / OFF by pressing Shift + 3.
- The Air Trafic Control screen seen by pressing the button A.
- The Map view screen seen by pressing the button B.
- The Kneeboard screen seen by pressing the button C.

PANEL INDEX

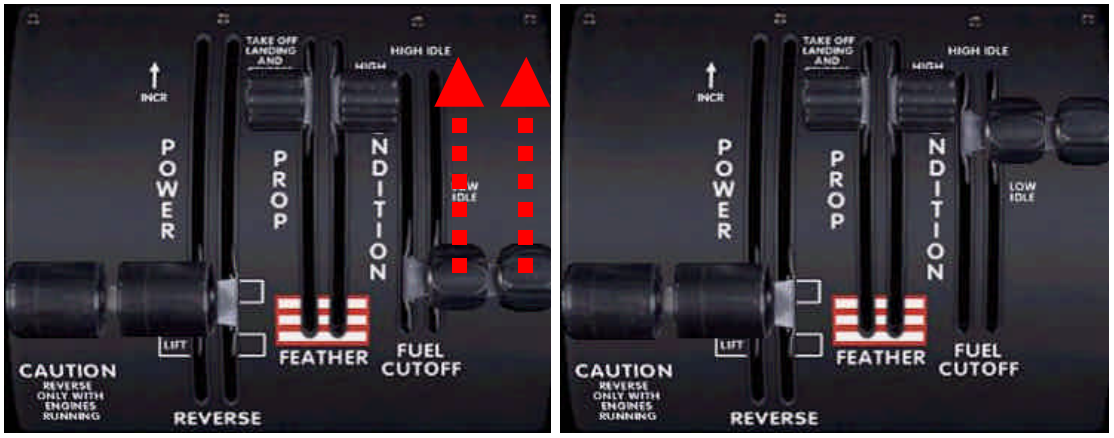
Please read very carefully the following index in order to understand in the very best way the panel's functions. After that, you can try them during the simulation.



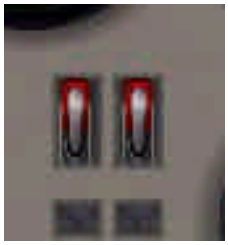
01) Toggle buttons
02) Magnetic compass
03) Landing gear light indicator
04) Stall warning light indicator
05) Speed brake light indicator
06) OMI marker indicator lamp
07) Analog Quartz clock
08) Analog airspeed indicator
09) DME digital display indications
10) Analog altimeter indicator
11) Flap position indicator
12) Analog VOR 1 indicator
13) Analog VOR 2 indicator
14) Analog attitude indicator
15) Digital elevator trim indicator
16) Analog vertical speed indicator
17) Engine fuel shut switches
18) Engine ignition switches
19) Analog turn indicator
20) Light switches
21) Analog radio magnetic indicator
22) Elevator trimer knob
23) Heating switches
24) Radio altimeter indicator
25) Avionics / Master BAT switches
26) Radio altimeter preset knob
27) Left engine's torque indicator
28) Right engine's torque indicator
29) Left engine's prop RPM indicator
30) Right engine's prop RPM indicator
31) Left engine's inner turbine temperature
32) Right engine's inner turbine temperature
33) Left engine's oil temperature / presure
34) Right engine's oil temperature / presure
35) Left fuel tanks percent indicator (total)
36) Right fuel tanks percent indicator (total)
37) Left engine's fuel flow indicator
38) Right engine's fuel flow indicator
39) Caution annunciator light indicator
40) Auto pilot control
41) COM1 digital display frequencies
42) NAV1 digital display frequencies
43) NAV2 digital display frequencies
44) ADF digital display frequencies
45) Transporder digital display frequencies
46) Left & Right engine thrust levers
47) Left engine propeler adjust lever
48) Right engine propeler adjust lever
49) Left & Right engine fuel levers
50) Reverse point for throttles

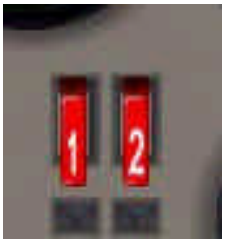
STARTING UP THE ENGINES

Starting the engines up is an quite easy procedure. First off all set your parking brakes ON. Now press buttons Shift + 2 to see the Throttle panel which contains the engine's throttle levers control, the props pitch adjust and the fuel cutoff levers. By clicking with your mouse's left button on the Left & Right engine fuel levers (49), slide and set the levers forward to the most **HIGH IDLE** fuel position. If the Left & Right engine fuel levers (49) are set at **LOW IDLE** fuel position, the engines will never start!



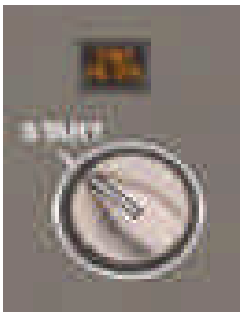
So, follow the engine start up procedure for your Reims Aviation F-406 Caravan II turboprop powered, by clicking your mouse's left button on the Engine fuel shut switches (17) to DOWN possition (the figures #1 and #2 **must** be seen) just like the following screenshots are showing. These switches might automaticaly set by sliding the Left & Right engine fuel levers (49), at **HIGH IDLE** fuel position.



Completing the previous procedure as described before, the turboprop engine's fuel valves should now be "opened" and ready for pre-heating. Here comes the difficult part which will start the engines. Study the following lines **VERY** carefully in order to understand the procedure

and do not have any problems with this situation. To turn on the left Nr 1 engine, the Nr 1 Engine ignition switch (18), should be turned left (counter clockwise) by clicking on it, with the mouse's left button, as it is shown at the screenshot to set the switch at START position and **keep your mouse left button pressed** until you'll hear the engine rotating. An small orange coloured indicator light, signed as START VALV OPN, will be lighted during this procedure. By keeping the mouse left button pressed on the ignition switch, the engine's start up action can be simulated. After starting up the left Nr 1 engine, release the mouse button to let the switch come back at the "neautral" position. Replay the procedure for the right Nr 2 engine as well.



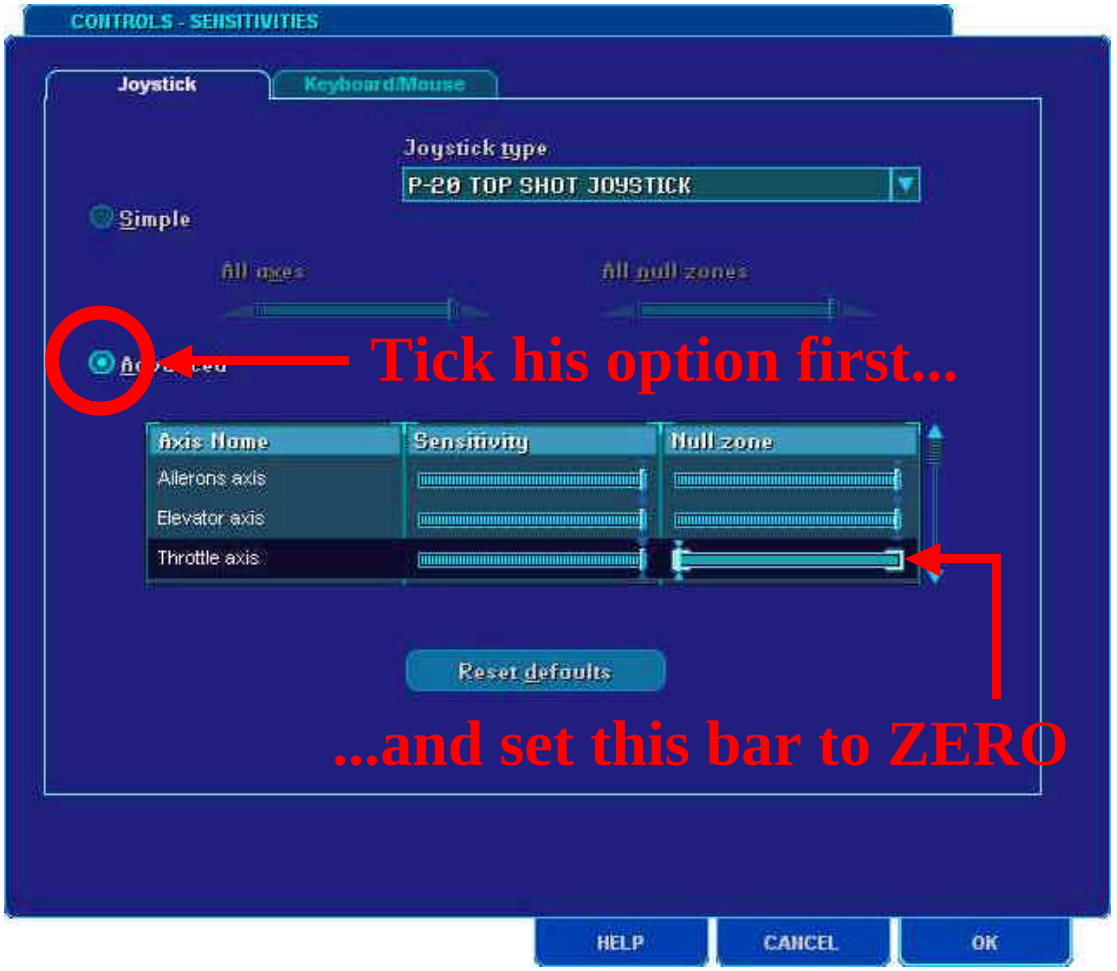
APPLYING POWER

After starting up the engines, select both engines moving together by pressing E+1+2 buttons on the keyboard. Slide and maintain the Left & Right engine thrust levers (46) to the IDLE position. To slide the throttles to IDLE, simply press F1 button on your keyboard or press F4 button for MAX.

CAUTION

If you use a control stick or a flight yoke equiped with a throtle lever you **must** press the F1 button on the keyboard to slide the throttles to IDLE. In real aviation, sliding the throttles at IDLE position, means 65% of total power (just to keep the engine rotating). By the same way, the F4 button on the keyboard should be pressed, if you want to slide the throttles at MAX position. But If you just try to slide the throttle levers at the most "BACK" position, you will **unfortunately** discover that you set the thrust power at 73%, which means 8% more thrust power than normal. This will cause problems while trying to descend. At the same time, if you slide the throttle levers at the "AFT" (front) position you will only set your thrust power at 92%, which means 8% less thrust power than normal. This will cause some problems while trying to accelerate. **This is a known FS2K2 bug, so use F1 and F4 buttons as required!**

To overlay this problem you can do the following: On your FS main menu (top of the screen) click on Options / Controls / Sensitivities and set the bars as the following screenshot shows! You MUST set the throttle's axis Null zone bar setted to ZERO (full left)! By completing this little trick, you can have a thrust variety from **65%** to **100%** (which is more realistic) and not the wrong **73%** to **92%** !!!



TAXIING

At this moment the turboprop engines are “alive”, the throtle levers are set to IDLE position and the gear brakes are ON. Set the flaps to FULL, reset the Analog altimeter indicator (10), neautralise the Digital elevator trim indicator (15) by clicking on it. Check the Analog attitude indicator (14) to be sure that it is **uncaged** and Analog turn indicator (19) for mulfunctions.

Slide the Left engine propeler adjust lever (47) and Right engine propeler adjust lever (48) to the most increased position (forward). Release the parking gear brakes and apply thrust power by sliding the Left & Right engine thrust levers (46) forward too gently and wait for the engines to reply. Do NOT attemp violent throttle lever move, if you do not want to damage your Reims F-406 Caravan II aircraft!

The pilot who taxies slowly **always has control of the airplane** and can stop whenever he chooses. When taxiing, it is important that speed and use of brakes be held to a minimum and that all controls be utiliazed to maintain directional control and balance. Taxiing over loose gravel or cinders should be done at low engines speed to avoid adbrasion and stone damage to the propeller tips. While taxxing to the line, check the flight controls . The best taxi speed is between **15 KIAS** and **20 KIAS**.

CAUTION

Do not exceed this speed limit unless of an emergency situation.

BEFORE TAKE OFF PREPARATIONS

Be sure that all the instruments are working within the limits. Line up and follow the proper checklist. Set your gear brakes ON. Test the engines by applying MAX power on them. Slide full forward the Left & Right engine thrust levers (46), let them 2-3 sec and retract them back to IDLE position to ensure that the engines are rotating normaly "by the numbers". If engines are accelerating smoothly, the airplane is ready for take off procedures.

TAKE OFF

Reims F-406 Caravan II's flaps position are the following: UP, 10°, 20° and 40° (or FULL) position. Normal take-offs are performed with flaps 10°. Flap settings 20° or greater, are approved only for short field take offs. Use of flap setting 40° or more, is needed for minimum ground runs or for take off from soft or rough fields. Use of flaps allows save use of slightly lower take off speeds than with flaps UP.

The lower speeds result in shortening the ground run and total distance over a 50 ft obstacle by approximately 10%. However, this advantage will be lost if flaps UP speeds are used, or in high altitute take offs in hot weather at maximum weight where climb would be marginal with 10° flaps. Therefore, the use of 10° flaps is NOT recomended for takeoff over an obstacle at high altitutes in hot weather.

CAUTION

To complete a nice & easy take off, elevator MUST be well trimmed to avoid useless pitcing

Elevator trimming is needed to perform a take off run “by the numbers”. If you try to take off your aircraft without trimming, you might have difficulties on seting up the Reims F-406 Caravan II on the air. So, by clicking with your mouse’s left button on the Elevator trimer knob (22), set the the elevator’s trim on the desired level. You can check the the elevator’s trim level on the Digital elevator trim indicator (15). The best trim for take off is **9** as shown in the right screenshot.

Set the flap lever as required. Apply wheel brakes and set the Left & Right engine thrust levers (46) to MAX. Let the engines to reply and after 2-4 sec release the gear brakes. For a fully fuel loaded aircraft, approaching about **105 KIAS** (when using flaps 10°) or **98 KIAS** (when using flaps over 20°) is the right time to raise the nose **SMOOTHLY** to a take-off attitude. For an aircraft which is not fully loaded with fuels, these take-off speeds will surely become lower.

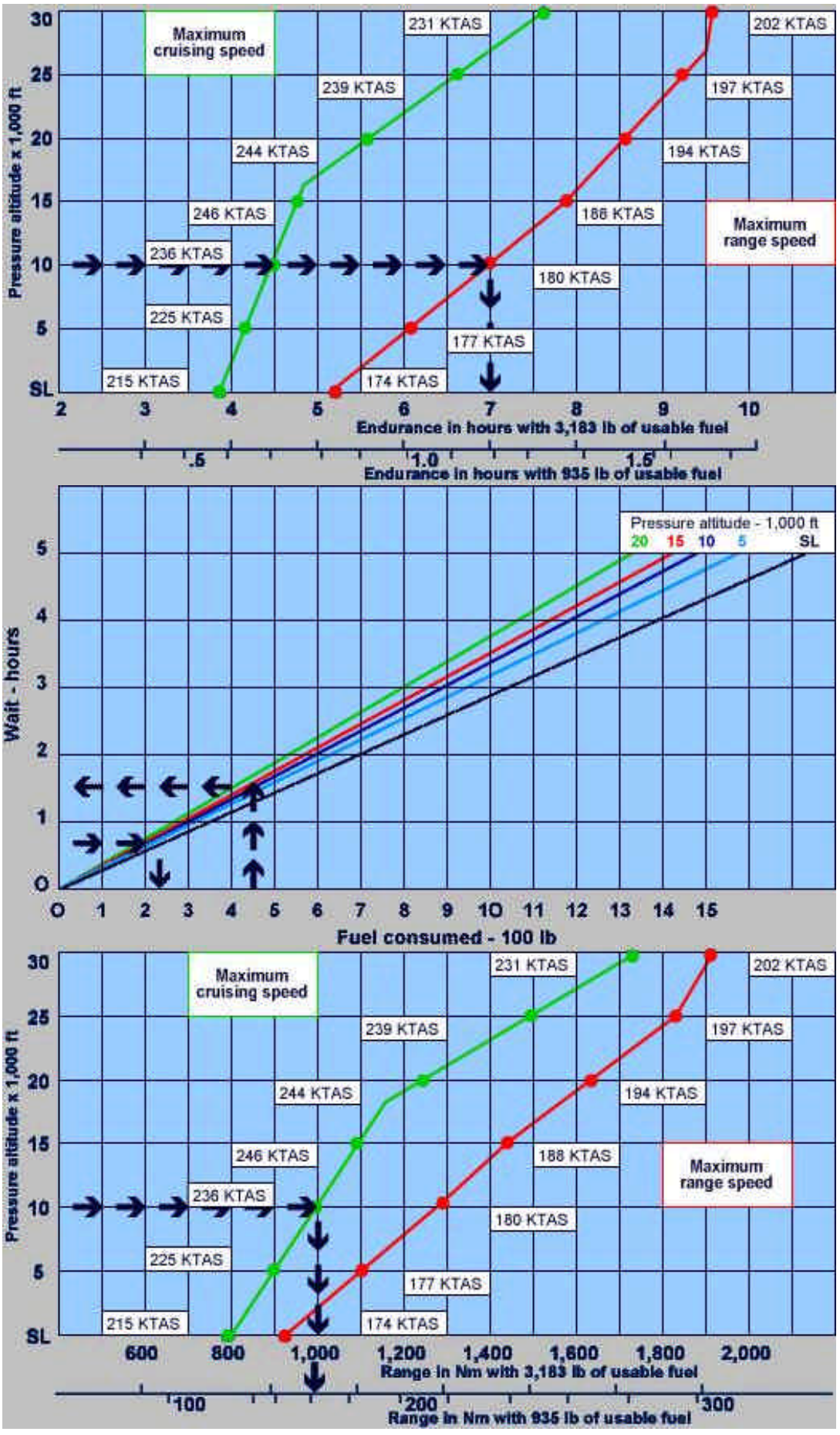
Maintain this attitude and allow the aircraft to fly off the ground, which will normally occur between **135 KIAS** and **150 KIAS**. Set the aircraft’s nose up, as high as it is neccesery to establish and maintain a possitive climb rate. At **200 ft** AGL, retract the landing gear by presing the G button on keyboard. Raise wing flaps after gear has been retracted (watch out the Landing gear light indicator (3)) and the aircraft is at safe altitute and airspeed **OR** after any obstacles are cleared off or when the aircraft is at safe altitute and airspeed. The best angle to succed that is when maintaining a take-off climb between 15 degrees and 25 degrees. When the aircraft’s airspeed reaches **160 KIAS**, retard the throttles to **75% RPM** to **85% RPM** (watch the Left engine’s torque indicator (27) gauge and the Right engine’s torque indicator (28) gauge) and maintain a climb rate about **1500 ft/min** until reaching recomended climb schedule. By clicking with your mouse’s left button on the Elevator trimer knob (22), reduce the the trim as required, to maintain a normal flight attitute.

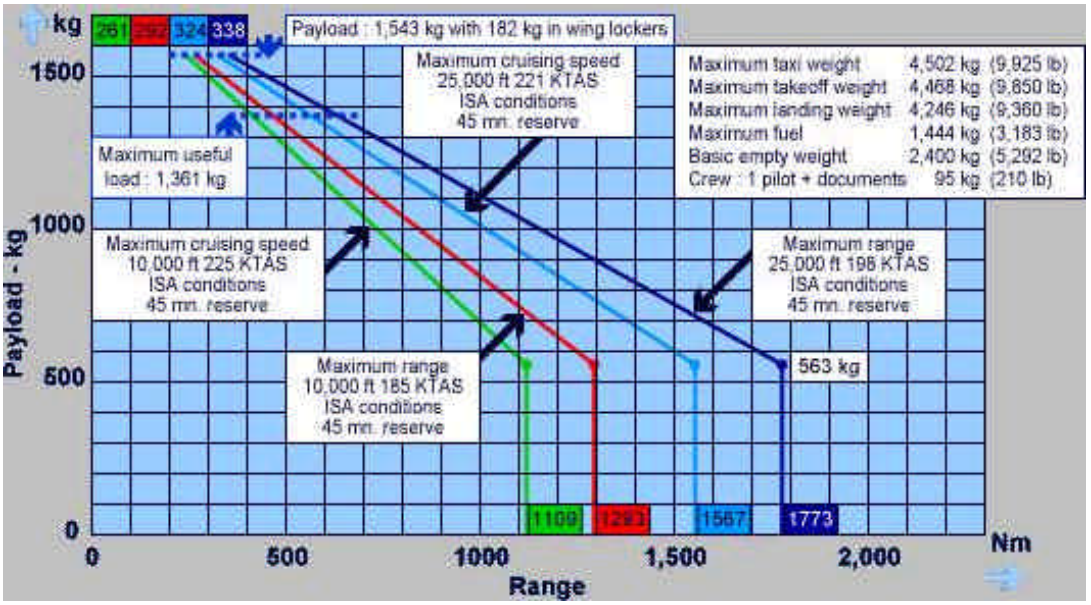
CLIMBING

Normal climbs are performed with flaps at UP possition and Left & Right engine thrust levers (46), at full MAX possition and at speeds depending 5 to 10 KIAS higher than best rate of climb speeds for the best combination of performance and visibility. Power settings between **75% RPM** and **85% RPM** and elevator trimming **3**, will provide a comfortable climb rates at **205 KIAS** to **210 KIAS** for intermediate altitute level-offs. Maximum thrust instrument climbs require extremely high pitch angles and are not normaly used for instrument departures. If condition require a maximum thrust climb, maintain a climb indication untill approaching the recomended climb airspeed and then adjust pitch to maintain climb schedule. When a full loaded aircraft is used, the best recomended climb rate (**2500 ft/min**) is succeded, if a 9 degree to 12 degree climb and **200 KIAS** to **205 KIAS** speed maintained, seting as elevator trimming **4** checked on the Digital elevator trim indicator (15).

CRUISE

Normal cruising is performed between **65%** and **75%** of power. The engine RPM and corresponding fuel consumption for various altitutes can be determined by using the official Reims Aviation power computer or cruising charts. These cruising charts provide aircraft cruising performance, which includes time, distance and fuel required to fly as well as estimated cruise-climb altitute & service ceiling for a various of drag indices. To perform the best cruise behavior you should maintain your flying within the aircraft’s limitations.


Maximum cruising speed
231 KTAS
202 KTAS
239 KTAS
197 KTAS
244 KTAS
194 KTAS
246 KTAS
188 KTAS
Maximum range speed
236 KTAS
180 KTAS
225 KTAS
177 KTAS
215 KTAS
174 KTAS
Pressure altitude x 1,000 ft
30
25
20
15
10
5
SL
2
3
4
5
6
7
8
9
10
Endurance in hours with 3,183 lb of usable fuel
.5
1.0
1.5
Endurance in hours with 935 lb of usable fuel
Pressure altitude - 1,000 ft
20
15
10
5
SL
Wait - hours
5
4
3
2
1
O
O
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Fuel consumed - 100 lb
Maximum cruising speed
231 KTAS
202 KTAS
239 KTAS
197 KTAS
244 KTAS
194 KTAS
246 KTAS
188 KTAS
Maximum range speed
236 KTAS
180 KTAS
225 KTAS
177 KTAS
215 KTAS
174 KTAS
Pressure altitude x 1,000 ft
600
800
1,000
1,200
1,400
1,600
1,800
2,000
Range in Nm with 3,183 lb of usable fuel
100
200
300
Range in Nm with 935 lb of usable fuel



BALANCING AND TRIMING

As you might feel when you'll fly the Reims F-406 Caravan II aircraft in FS2K2, this model can be fully loaded with 540 US gallons of fuel. The left main tank contains 190 US gals, right main tank also contains 190 US gals, 80 US gals at the left auxiliary tank and another 80 US gals at the right auxiliary tank. This means that if you decide to load for example 170 US gals in the left main tank and only 80 US gals in the right main tank you'll have balance problems that you sould attemp to repair by triming. When the main flight line will be established apply as much left or right trim as it is needed to center the aircraft's balance. As the fuel getting lower you should trim again as much as it is needed.

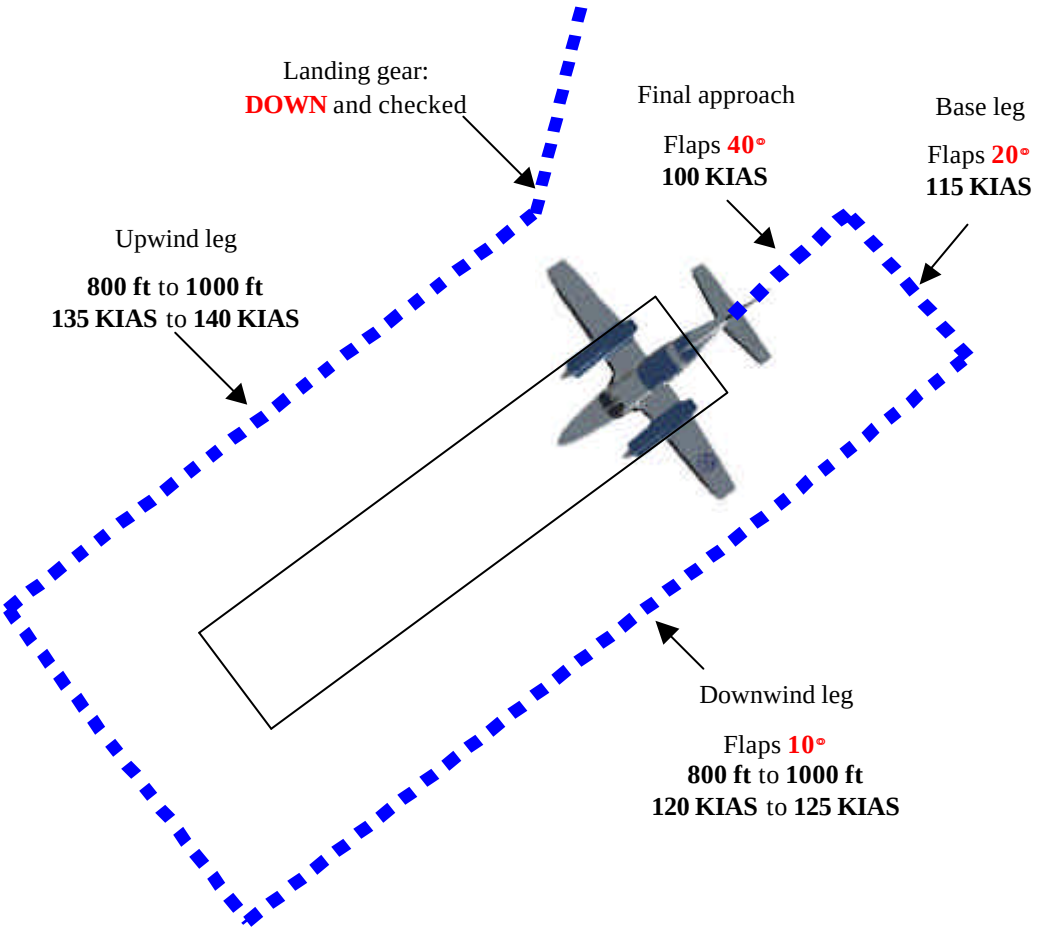
By the same way pitch triming should be applyied each time you'll try to climb or descend after established in the desired altitute. Fully trim actions take place on the LANDING phase of flight as it is shown and explained later. You **MUST** trim your aircraft's elevator, by clicking your mouse on the Elevator trimer knob (22), each time you select a new flight level. If you already fly with A/P aid you don't need that; the A/P does all the "dirty job" for you! But if you fly "by hand"...you will sooner or later will have to exercise triming! The trim "number" depends by many reasons: Altitute, airspeed, crosswinds, temperature etc. For example: If a fully loaded Reims F-406 is flying at 7500 ft, flaps UP, gears UP, airspeed 230 KIAS the trim must set to **1**, to remain in **LEVEL** flight. Now, if the airspeed change from 230 KIAS to 200 KIAS, the trim must also change and set to **3**. If the airspeed change again to 140 KIAS, the trim must change to **11**. Elevator triming isn't needed only for level flights. For example: If descending with -500 ft/min to land with flaps 40°, gears DWN, airspeed 100 KIAS to 105 KIAS, the Digital elevator trim indicator (15) should indicate **8** or even **9**!

DESCENDING

After seting the NAVigation aids up to establish a heading to the desired airport, an official descend chart should be followed. Maximum range descend charts determine fuel, time and distance required to descend from altitute at IDLE thrust. For use is FS2K2 you do not need to follow up these charts but you should make an effort to prevent overspeed! **Use the throttle as required to reduce the cruising speed** and perform an as normal as can be succeded descend. The best speed to perform a normal procedure descend is between **135 KIAS** and **140 KIAS** while VSI is established at **-1000 ft/min**. Apply elevator trimming as required.

LANDING

Normal landing procedures should be used to land the Reims F-406 Caravan II in FS2K2 enviroment too. The before landing check is used when returning from a flight that takes the airplane away from the home field. Complete the pre-landing checks before entering the traffic pattern, so that thereafter you will be able to devote your undivided attention to traffic and landing. Don't forget to set the automatic pilot to OFF. All A/P switches must turned OFF to eliminate any possibility of accidental engagement.



The traffic pattern and the rules for entering and flying it, are prescribed by local field regulations. At the majority of the airfields, the traffic pattern is rectangular in shape. The pattern altitute may vary, but generally is between **800 ft** and **1000 ft** AGL (Above Ground Level). For traffic and safe spacing purposes, fly the pattern at **135 KIAS** to **140 KIAS** and **1250 RPM**, with manifold pressures sufficient to hold the desired airspeeds, but not in excess of **15** units.

While entering in the upwind leg of traffic pattern, you should operate the gear lever to the DOWN position to activate the main & the front landing gear but **DO NOT** activate the gears above **195 KIAS** speed. If you raise gears above this speed, maybe will effect a serious damage and not have the oportunity to fix it! Even the gear system (maybe) will be raised, you cannot be sure for the proper gear locking no matter the three green lights on the instrument panel.

After you'll be established on the main landing path circling towards the desirable runway, maintain a descend glide path. Keep your airspeed between **125 KIAS** and **135 KIAS** while attempting to "enter" at the landing procedure. At **125 KIAS**, while you're turning left to "enter" in the downwind leg, set your flap lever to 10° and keed your airspeed reduced not above 125 KIAS. When flying into the base leg your airspeed should be **115 KIAS** and you should set flap lever at the 20°. Finaly, on your final aproach set flaps at 40° position when your airspeed is about **100 KIAS** to **110 KIAS**.

Proper base leg should be placed <u>NOT MORE than 3 nm</u> far from the desired rnw's threshold

As soon as you establish the final line for landing you should attemp your landing. To make a succesfull landing try to trim the aircraft in order to maintain a pitch angle by 5 degrees to 8 degrees. Land the aircraft by sliding the Left & Right engine thrust levers (46), back to IDLE position or as back as needed to make the aircraft "glide" and finaly touch on the runway as smooth as possible. You can increase / descrease the aircraft's sink rate by seting the Left & Right engine thrust levers (46), at the "right place" or by applying trim action on Elevator trimer knob (22) as required and checking on the Digital elevator trim indicator (15)! Personally, I prefer to control the aircraft's sink rate by seting my throttle levers on IDLE position and applying trim as required.

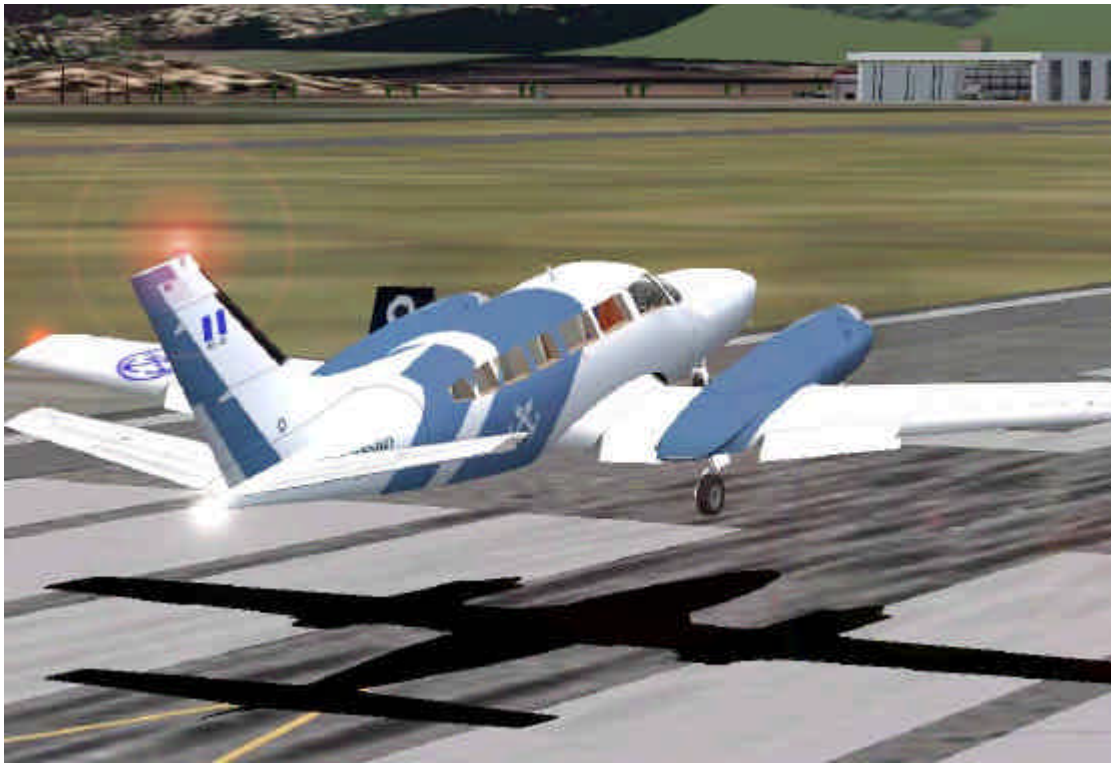
An easy way / trick to make a succesfull "final" approach and maintain in ideal glidepath for landing is to try to "aim" the desired runway's threshold inside the upper part of your panel as it is shown at the following main screenshot **AND ALSO** maintain a descent rate about **-800 feet/min** to **-1000 feet/min**. Try to keep the Analog vertical speed indicator (16) kneedle, close to the "**-800 ft/min**" position as it is shown at the following right screenshot. "Aim" the desireable runway's threshold by using your Elevator trimer knob (22) (control stick or pitch trim) and the desirable glide rate by using the right Left & Right engine thrust levers (46) setting.

When altitude will get lower than **100 ft** to **125 ft** AGL (watch on the Radio altimeter indicator (24)), pull **veeeery getly** back the contol stick, to establish a **-500 ft/min** maximum sink rate and you must remain this untill touchdown. Try to keep the Analog vertical speed indicator (13) kneedle, **BELOW** the **-800 ft/min** limit as it is shown at the following left screenshot. The landing should be made with **as low a sink rate as possible**. Maximum landing sink rate for a loaded aircraft is 800 ft/min for normal landings and 600 ft/min for crosswind landings. The best landing speed is **90 KIAS** to **95 KIAS** as shown at the following screenshots.

WARNING

You will **NEVER – NEVER – NEVER** make a safe landing if you try to touchdown when your sinkrate is more than -1000 ft/min and your airspeed is above 200 KIAS.

On all landings, take particular care to avoid holding brakes while using rudder on the approach. Landing with brakes or applying brakes before the full weight of the airplane settles, will cause damage to the landing gear system and the airplane might lose straight direction. After touchdown, hold the nose as high as possible without becoming airborne, to obtain maximum aerodynamic braking. Hold this attitude until speed is redused to **50 KIAS**. After nosewheel is lowered, aply brakes. When your speed get lower than **20 KIAS** to **25 KIAS** release the continus brakes and apply brakes occasionaly as required. Apply as much braking strength is needed to descelarate and avoid locking on brakes. Tire skidding on a wet runway will increase stoping distance and can easily result in loss of directional control. Make every effort to remain in the center line of the runway if any barrier engagement should become necessary. Descelarate to **15 KIAS** and taxi to the airport's appron.



GO ARROUND

If airplane is not on the ground within the first 1/3 of the runway and the conditions to make a landing or approach are unsafe, you must go around again and make another approach and landing. Make the decision to go around as soon as possible. If touchdown is unavoidable, do not try to hold the aircraft off the runway, but continue to fly the aircraft to touchdown. If a touchdown is make, lower the nose slightly to a normal takeoff attitude and allow the aircraft to accelerate to takeoff. When a go-around is required at low altitude, proceed as follows:

- Throttle levers - MAX (both full forward position)
- Flap lever - Retract to UP possition afterr aplying power. While they are being retracted, raise nose slightly to overcome the loss of lift which occurs as flaps come fully up.

Maintain a minimum speed **100 KIAS** and avoid using excessive bank angles at low altitudes because stall speed increases as bank angle increase and sufficient altitude may not be available for recovery. When you reach **1000 ft** AGL, and if or as soon as conditions permit, set the flap lever to 10° possition. After that, you may now try a new landing pattern entry.

ENGINES SHUT DOWN

After taxiing back to appron (taxiing procedures explained before) stop the aircraft, set parking brakes (in real aviation you shouldn't aply parking brakes because the hot brakes may cause the expander tubes to burst) and follow the "Engine shut down" procedure:

Retract the Left & Right engine thrust levers (46), back to IDLE position by setting the flightyoke's or joystick's throttle lever "full back" or by pressing the F1 key on your keyboard and using the following procedures, shut the engine down. Click with the mouse's left button on the Left & Right engine fuel levers (49) and drag them untill setting the levers back to the most **LOW IDLE** position. As soon as the Left & Right engine fuel levers (49) set at **FUEL CUTOFF** position, the engines will stop running!

Click your mouse's left button on the Engine fuel shut switches (17) to UP possition (the figures #1 and #2 **must NOT** be seen) just like the following screenshots are showing. Engine's fuel valves are now "closed" and normally both engines are not running. After both propels are finaly stoped, be sure that both left & right engine ignition switches are set at the "neautral" position as shown bellow:

ENGINES & SYSTEMS LIMITATION

- Maximum speed limit (glide, dive or smooth air): **246 KIAS** at sea level.
- Flaps **FULL** maximum operating / damaging speed: **220 KIAS**
- Maneuvering speed *****: **240 KIAS**
  (*****) The speed at which you can use abrupt control travel without exceeding the design load limit.
- Stall speed : **105 KIAS** when flaps **UP**, **75 KIAS** when flaps **FULL**.
- Cntrols: The aircraft cannot fly when above **45000 ft**.
- Nose wheel steering: Never turn the nose wheel more than **35°** either side of center, or structural nose gear damage could result.
- Load factor limit: **+3.2 G** / **-1.5 G** when flaps **UP** and **+2.5 G** when flaps **FULL**.
- Rudder: Never full abrupt rudder reverse deflection above **230** KIAS.
- Nose wheel stearing: The aircraft should not exceed **65 KIAS** with nose wheel steering engaged.
- Tires: The maximum tire speed limit is **200 KIAS** ground speed. Do not attemp landings at this speed!
- Landing gear system: Retract wheels before **195 KIAS**. Never exceed **220 KIAS** if gears **DOWN**.

GAUGES & SYSTEMS OPERATION

Analog altimeter indicator

The Analog altimeter indicator (10) should be calibrated before each flight. Use the mouse's left button, and click on the altimeter calibration knob (spoted with red circle and arrow as shown in the right screenshot) to set the runways ASL altitute. Don't get confused with the Digital radio altimeter indicator (24) bacause this gauge, will remain at **00000 ft** when the aircraft is landed on the ground.

Analog radio magnetic indicator

The gauge of Analog radio magnetic indicator (21) can show you the direction of VOR1, VOR2 and ADF navigational aids when the proper frequencies are set on the navigation aids frequencies. On the lower right part of the gauge, a VOR / ADF selector can be found. By clicking with the mouse's left button, on this selector, (spoted with the red arrow, as shown in the screenshot) VOR or ADF can be swiched. The **DOUBLE** lined orange arrow on the Analog radio magnetic indicator (21), **ALWAYS** shows the direction of VOR2. The **SINGLE** lined orange arrow, shows the direction of VOR1 or ADF direction, depending of the VOR / ADF selector position. The red flag with "ADF" written on (spoted with the yellow arrow in the screenshot), shows that ADF navigational aid has not detected yet or the frequecy is not set properly. By the same way red VOR1 & VOR2 flags can also be seen on the Analog radio magnetic indicator (21) gauge.

Radio altimeter indicator

The Radio altimeter indicator (24) is a gauge which indicates the remaining space between aircraft and ground. On the lower right part of the gauge, there is preset knob which can be clicked with the mouse's left button. This knob is spoted with the blue circle and arrow.
By clicking the preset knob, a yellow triangle bug moves on the altitute remarks. As you can see at the right screenshot, the bug is set at **200 ft** (spoted with the purple arrow).
As soon as the altitute becomes lower than the preseted unit (as described before...) an indicating light, will start flashing on the upper left part of the gauge. This lamp is spoted by the orange coloured circle and arrow.

Auto Pilot control

Reims Aviation F406 Caravan II aircraft, is also equiped with an Auto pilot control (40), whitch can be used for FS2K2 flights. To activate / deacticate the Auto Pilot, click with the mouse's left button on the AUTO button switch (spoted with the blue arrow) to make it light. Other buttons switches ALT, NAV, APP, LOC, HDG, can also be selected. The desired altitute can be selected through the upper right meter (spoted with the red arrow). The desired VSI can be selected through the yellow arrow marked meter and the heading bug can be set through the purple arrow marked meter. The IAS airspeed bug can preseted through the green arrow marked meter as shown.