Combat Flight Simulator 2

A Magazine For Fellow Enthusiast

USE OF FLIGHT FILES TO MANIPULATE CFS2

WHAT IS A CFG FILE?.

ADDING LOS'S TO A MODEL

HAWKER TEMPEST

FREE MODEL OF A mc51
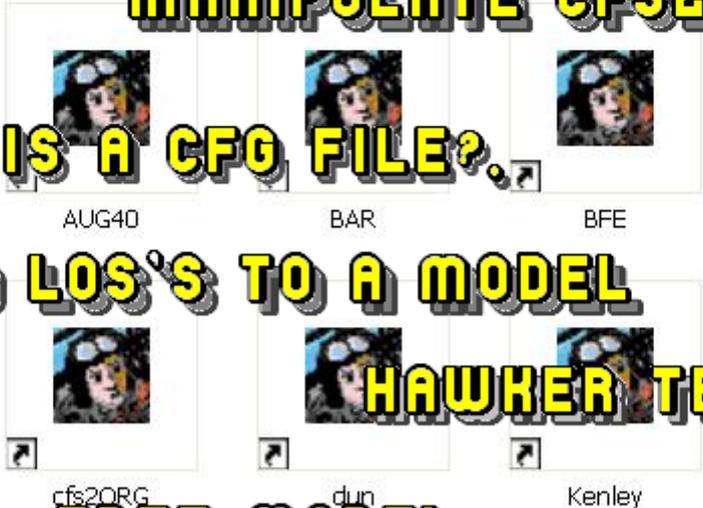
Introduction to Combat Flight Simulator 2 A Magazine For Fellow Enthusiast.

IN BRIEF.

My name is Robert John Sprackland. AKA Robert John.
This magazine is for all levels of Combat Flight Simulator 2 enthusiast.
It will deal with all aspects of the game.
Dealing will all types of scenery and its installation, adjusting and reconfiguring files etc.
Over the years I have gained knowledge of working with and developing freeware scenery for Microsoft Flight Simulators. I would like to help modernise some of the good older scenery, like placing LOD's within the models. I have installed many products incorrectly and hope to pass on many ways of installing these products correctly.
I would like input from other members of the community.
You may contact me via SOH private message, or my hotmail address.
rjsprackland@hotmail.com
Hope you enjoy.
R J Sprackland.
28 July 2012

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What is a CFG file?.

"Editors note, although the information is freely available on the web and else where, I hope this compilation is useful to its readers"

"Throughout the issues we will work our way through the tools and do some simple tutorials"

CFG files normally refer to configuration files for applications or your operating system. typically should not be opened manually, but is often saved in a text format that can be viewed in a text editor; can sometimes be moved or deleted to revert to a program's default settings. If you have Microsoft Office installed on a Windows machine, these may be referred to as "Microsoft Office Outlook Configuration Files", though other applications use configuration files with the .cfg file extension.

FROM THE SOH CFS2 FORUM

CFS2 cfg. file Explanation

codeseven.

Hi guys,

Does any know where there might be an explanation of a the values in the cfg. file? Seems to me I remember seeing a breakdown of all the values, what they do and what best to set them at but I don't remember where. No specific value in mind, I just wanted to refresh my mind on what they all do.

Thanks.

Devildog73.

"0" means it isn't going to do anything.

I will give you a brief look at the ones I have monkeyed with.

Take a look at this:

[LANGUAGE]

DLL=english.fll

[MAIN]

ShowLogo=1

ShowMovie=0

....

[CONTROLS]

force_master_gain=0

force_stick_force_enabled=0

force_stick_shaker_enabled=0

force_gear_bump_enabled=0

force_crash_enabled=0

force_ground_bumps_enabled=0

force_machinegun_enabled=0

force_bulletdamage_enabled=0

force_rocket_enabled=0

force_bomb_enabled=0

force_flak_enabled=0

PAN_RATE=400

Now, I do not have a force feedback joystick. If you do, don't change the [CONTROLS] =1 to =0

There are other twixes and tweaks you can do in the CFS2.cfg, but you can do them in your settings menu options in the game.

hope this helps.

DD73

MaskRider.

Here is a link to a pretty good article by Thomas McGuire published way back in Jan 2001 at TechSpot.com

Combat Simulator 2 Tweak Guide

Not only does it do a great job covering tweaks that can be made from within the games settings menus, it also does a great job taking one through the different sections of the cfs2.cfg file and tweaking them.

It isn't totally comprehensive- after all, a whole decade of other tweaks to the cfg file have flowed under the bridge since this article was written- but it should help you find your way around the cfs2.cfg file.

MR

The B24Guy.

Don't forget the Cheats.

[CHEATS]
bomb_trainer=1
free_warp=0
ALLOW_SLEW=1
damagemsgs=0

Regards,
B24Guy

Exploding Jets.

To avoid the "exploding jets" problem with jet aircraft in CFS2, you must make the following manual change to your CFS2.cfg file, which is located in the main CFS2 directory:

   1. Open the CFS2.cfg file in Notepad.

   2. Scroll down to the [REALISM] section.

   3. Change StressDamage=True entry to read StressDamage=False.

   4. Save and close the file

CFG and GSL

Tutorial for the CFS2 built-in GSL CFS2 Utilities

http://forum.lwdesigns.com.au/downloads.php?view=detail&df_id=56

You will have to register with this site as you do with others or log in to download.

http://forum.lwdesigns.com.au/ucp.php?mode=register&sid=f23a097ba74b07ca2e95f30fe73534ec

"information cut and paste from CFS2_GSL_Readme"

"Editors note, a fantastic must know read"

Tips & Tricks

Rhumbaflappy

We can force an alternate CFG file at startup with a command-line switch.

Code:

"C:\Program Files\Microsoft Games\Combat Flight Simulator 2\CFS2.EXE" /CFG:hendersonGSL.cfg

You can make a copy of the Desktop shortcut, and rename it HendersonGSL.

Then right-click the new shortcut, and select the "Properties" item. This exposes the properties of the

shortcut... and left-click on the "Shortcut" tab.

The line named "Target:" is where you can add a command-line like the above example. Not only can

you have different shortcuts for different GSL files, but you can now have completely different CFG

setups for each shortcut.

This seems a better solution than swapping out or altering the CFS2.gsl file.

Now opening CFS2 by clicking the HendersonGSL Desktop icon will start CFS2 with the

henderson.gsl file. Opening CFS2 by clicking the default icon will start CFS2 normally.

The shortcut could be included with distributed GSL files for placement on the Desktop.

Copyright ©

Martin Wright Graphics

"Editors note, a fantastic must know read"

"Throughout the issues we will work our way through the tools so have them ready."

"If you are using GSLMan to add gsl's to your gsl file it is important you use Martin Writght's GSL Developers pack".

"If you add objects with the GSLMan with objects that lay within a gob area that is already being used the original objects will disappear."

Martin's GSL Developers pack is available by email request at his website through the Developers Corner link.

http://www.mwgfx.co.uk/index.htm

Any copy of Martin's GSL Developers pack received via Martin includes Martin's very comprehensive manual/tutorial: GSL Scenery Design for Combat Flight Simulator 2- Tools and Techniques. The last page of the tutorial lays out Martin's copyright info and clearly lists which of his files may be redistributed with scenery.

This is a collection of tools for working with the CFS2

Global Scenery Layer system. This is the second generation and is statically linked to the mwgob code. This means that mwgob.dll is no longer required for their use.

========
GSLEdit
========

This is the main tool for working directly with the cfs2.gsl. It will let you import and export data in a format compatible with Mission Builder.

=========
GobCheck
=========

Tool for checking which area your scenery layouts fall in and to split them into separate areas if necessary.

=======
GSLMan
=======

This is a GUI tool for adding and removing custom sceneries in CFS2. It is intended as a tool to be distributed with your finished scenery to let the user install your scenery into their copy of CFS2. This MUST be placed in the CFS2 GSL folder in order to function correctly

See "GSL.pdf" for full copyright description.

Here is a screenshot of some of my cfg files.

cfs2	cfs2AUG40	cfs2BAR	cfs2BFE	cfs2BOB	cfs2BOBH
cfs2dun	cfs2HORN	cfs2Kenley	cfs2NEWSPIT	cfs2ORG	cfs2spit
country	default_panels	devices	display	scenery	sceneryAUG40
sceneryBAR	sceneryBFE	sceneryBOB	sceneryHORN	sceneryKenley	sceneryORG
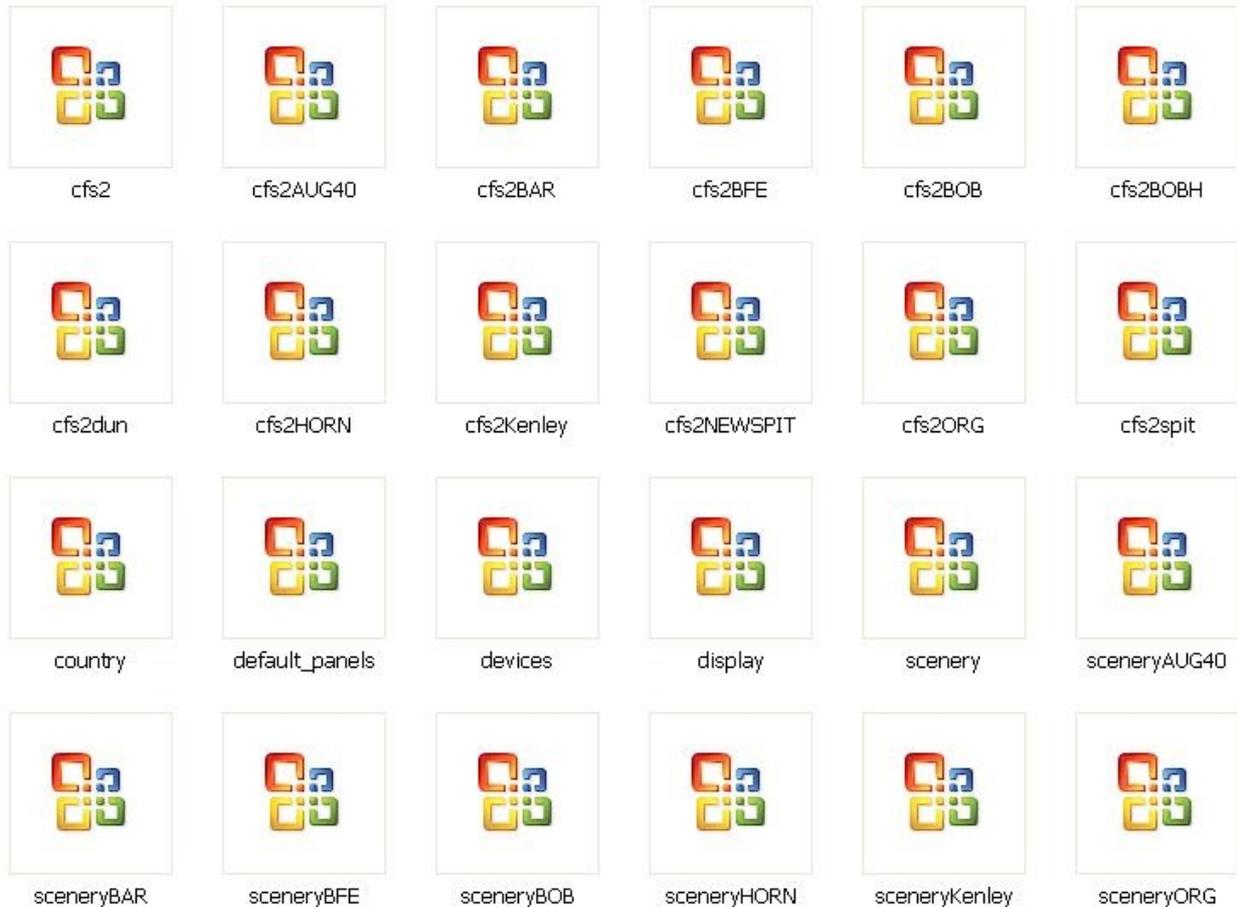
Here is the text for the cfs2Kenley.cfg.

Note the prefs that tells the game to use the Kenley.gsl file

WeatherServerPort=80

[PREFS]

UseGSL=Kenley.gsl

ADF_500_HZ=0

Here is a screenshot of some of my exe shortcut files.

AUG40   BAR   BFE

cfs2ORG   dun   Kenley

Here is a screenshot of the shortcut properties to show what cfg file the computer needs to use on startup.

Kenley Properties   ? ✕

General | Shortcut | Compatibility

Kenley

Target type: Application

Target location: Battle For Europe

Target: Battle For Europe\cfs2.exe" /CFG:cfs2Kenley.cfg

Start in: "C:\Program Files\Microsoft Games\Battle For Eu

Shortcut key: None

Run: Normal window

Comment:

Find Target...   Change Icon...   Advanced...

OK   Cancel   Apply

Here is the text for the properties target.

Note this line after the cfs2.exe.

/CFG:cfs2Kenley.cfg

TARGET

"C:\Program Files\Microsoft Games\Battle For Europe\cfs2.exe"
/CFG:cfs2Kenley.cfg

Here is part of the text from a bat file I use to run my game.

copy scenerykenley.cfg Scenery.cfg

:: The line below is the copy command and the command to run CFS2

:: Edit as necessary to point to correct location of CFS2

CFS2.EXE /CFG:cfs2kenley.cfg

Here is a screenshot of my Mission Builder shortcut properties to show what cfg file the computer needs to use on startup for my Dunkerque setup.

Here is the last two enteries for my sceneryKenley folder. Note the

added entry.

[Area.029]
Title=cfs2 veh
Local=..\CFS2 Scenery\ADDON\cfs2 veh
Remote=
Active=TRUE
Required=FALSE
Layer=29

[Area.030]
Title=Ludendorff ETO
Local=..\CFS2 Scenery\ADDON\Ludendorff ETO
Remote=
Active=TRUE
Required=FALSE
Layer=30

Here is the last two enteries for my sceneryBOB folder.

[Area.030]
Title=Ludendorff ETO
Local=..\CFS2 Scenery\ADDON\Ludendorff ETO
Remote=
Active=TRUE
Required=FALSE
Layer=30

[Area.031]

Title=Hawker Aircraft Factory

Local=..\CFS2 Scenery\SCENEDB\Hawker Aircraft Factory

Remote=

Active=TRUE

Required=FALSE

Layer=31

Here is the last entry for my sceneryBFE folder. Note the different Luddendorff Bridge being used.

[Area.030]

Title=Luddendorff Bridge

Local=..\CFS2 Scenery\ADDON\Luddendorff Bridge

Remote=

Active=TRUE

Required=FALSE

Layer=30

If you change Required=FALSE to Required=TRUE this will stop you deleting the scenery accidentally when using the scenery editor.

What are model LOD's

Level of detail From Wikipedia, the free encyclopedia,

In computer graphics, accounting for level of detail involves decreasing the complexity of a 3D object representation as it moves away from the viewer or according other metrics such as object importance, eye-space speed or position. Level of detail techniques increases the efficiency of rendering by decreasing the workload on graphics pipeline stages, usually vertex transformations. The reduced visual quality of the model is often unnoticed because of the small effect on object appearance when distant or moving fast.

Although most of the time LOD is applied to geometry detail only, the basic concept can be generalized. Recently, LOD techniques included also shader management to keep control of pixel complexity. A form of level of detail management has been applied to textures for years, under the name of mipmapping, also providing higher rendering quality.

It is commonplace to say that "an object has been LOD'd" when the object is simplified by the underlying LOD-ing algorithm.

Visual impact comparisons and measurements

Image					
Vertices	~5500	~2880	~1580	~670	140
Notes	Maximum detail, for closeups.				Minimum detail, very far objects.

Adding LOS's to a model

Download   Old-to-new models_CFS2_II.zip

"Old-to-new models CFS2 - Converting to a 3d model"

Download   CFS2 - Models-old-to new_I.zip

"Models_old_to_new"

Download CFS2 GMAX GAMEPACK INFO.zip

"EASY GMAX EXPLODING GSL SCENERY

MAKING TOOLS AND TUTORIAL"

http://www.sim-outhouse.com/sohforums/local_links.php?catid=49

Because the file name inside the zip, you will have to open with winzip\I agree\ now extract.

THE MODEL WE ARE GOING TO ADD LODS TO IS A "MC51" I MADE WITH NO LOD'S

Please read the tutorials so that you will become familiar with the processes.

You will find five files that came with this magazine, they are :-

1. RJ_MC51.BGL.   *(to convert to 3ds)*
2. CFS2_mc51.DP. *(copy of veh_51.DP.)*
3. CFS2_mc51x   *(copy of veh_51.DP. For model with lod's)*
4. RJ_MC51.SCA. *(to help compile your raw .sca.RJ_MC51-d)*
5. RJ_MC51x.BGL. *(finished model)*

Copy and Paste into this folder two textures

1. weapcar.bmp. From your cfs2 root texture folder.

*2.* veh_dam.   From your cfs2\ SCENEDB\veh\ texture folder.

We will need these textures for our work in gmax.

Not all textures are supported in modelconverterx so it is best to convert them to 24 bit colour, as you have copy and pasted these textures into a folder it is safe just to overwrite them.

Now open up RJ_MC51.BGL. In modelconverterx and save as 3ds.

Import into gmax.

Ignore warning.
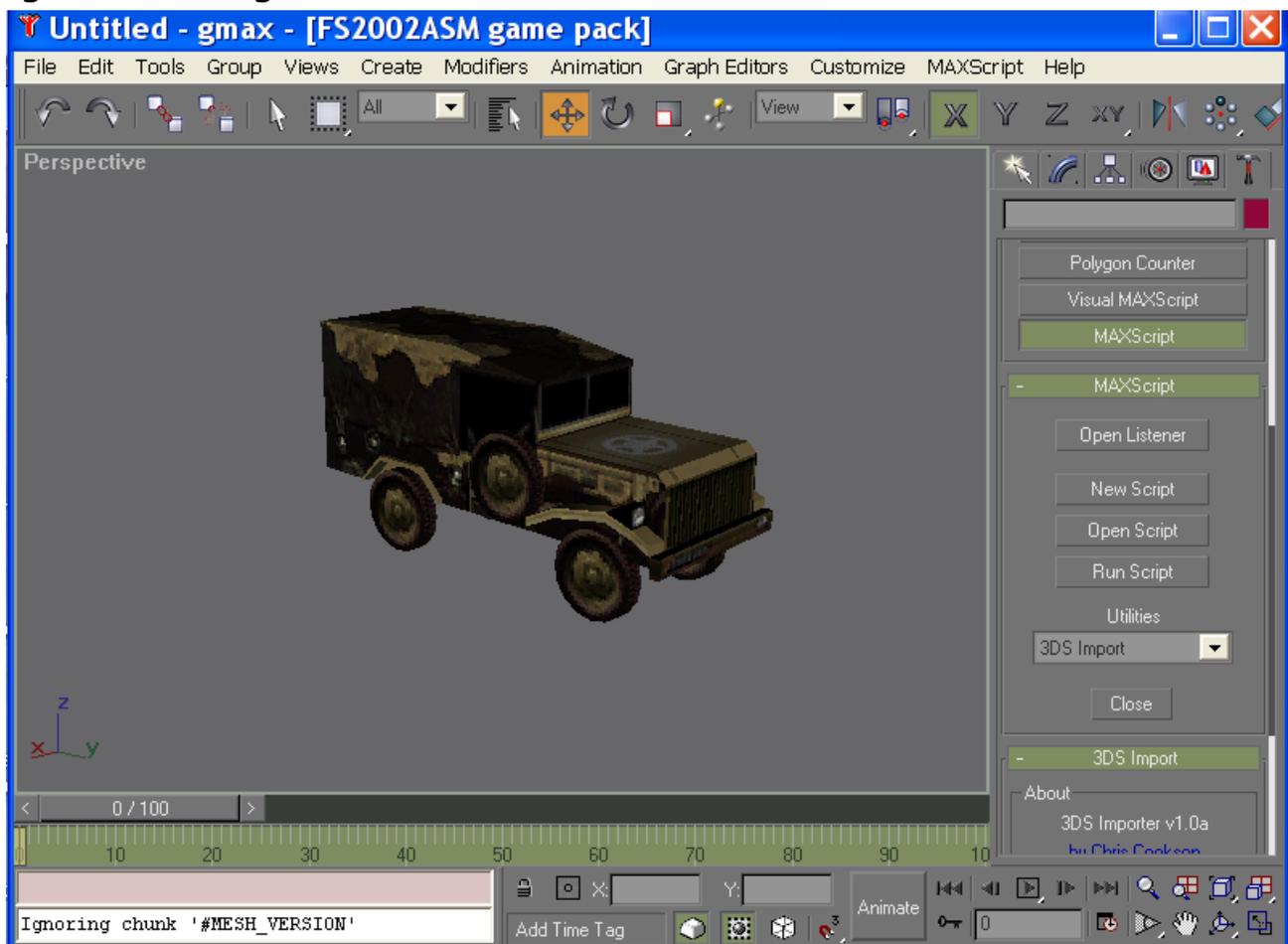
When the object is selected you will see an object number AA_LOD_100.

AA_ tells us the name of the model.

LOD_100 tells us what lod model it is.

Now we have to make the next lod.
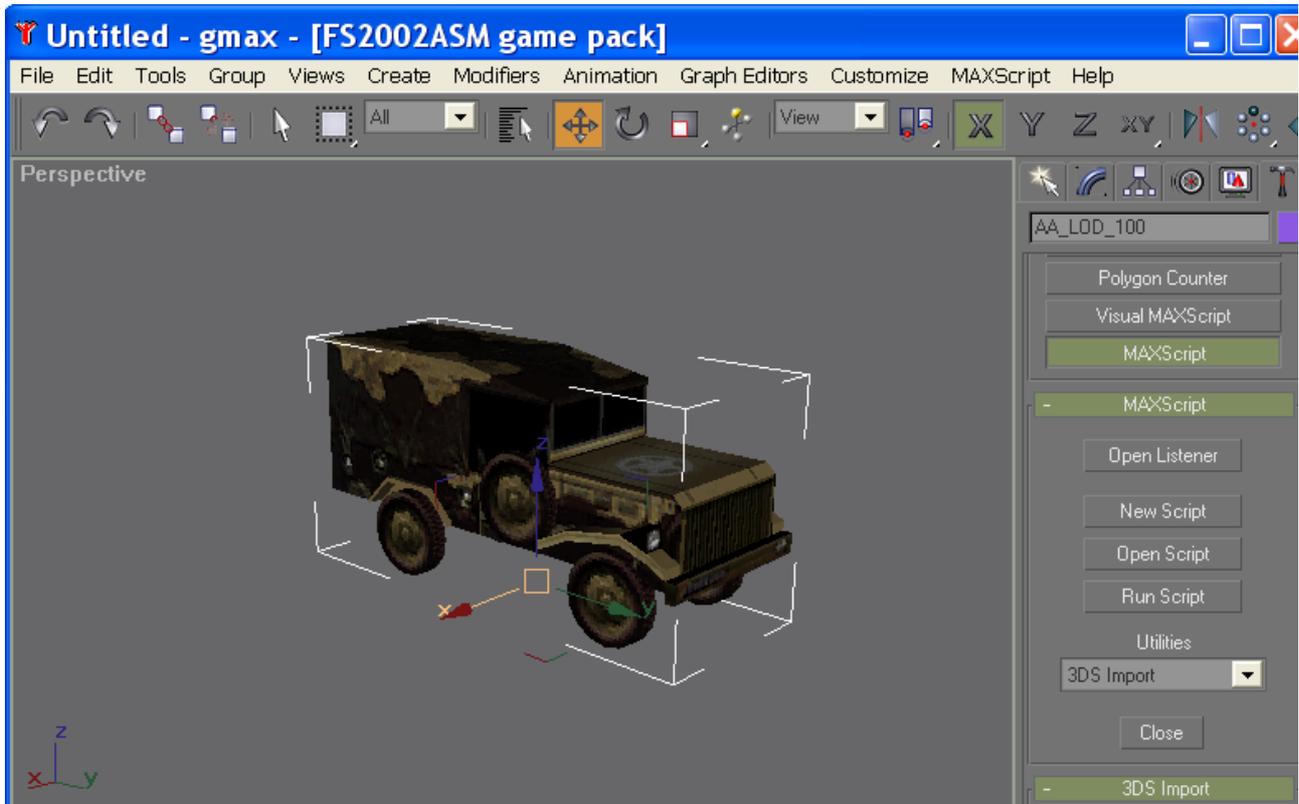
This Tutorial don't teach you how to use gmax, it just helps to advance your knowledge.

"There is a gmaxSceneryTutorial in the docs folder of the fs2004 gamepack that can be downloaded from the fsdevelopers website site that explains in detail how to link lod models".

Save model something like weapcar.

The next lod will be lod_080 so we have to make the model less complex, we do this by cutting down the polygons for the model that will be viewed at a distance.

What I did for the lod_080 model was decrease the polygons on all the wheels from 18 sided cylinders to a 12 sided cylinders.

The next lod will be lod_060.

What I did for the lod_080 model was decrease the polygons on all the wheels from 12 sided cylinders to 8 sided cylinders and delete the polygons from the far side of the wheels, delete the spare wheel,front

lights and mudguards.
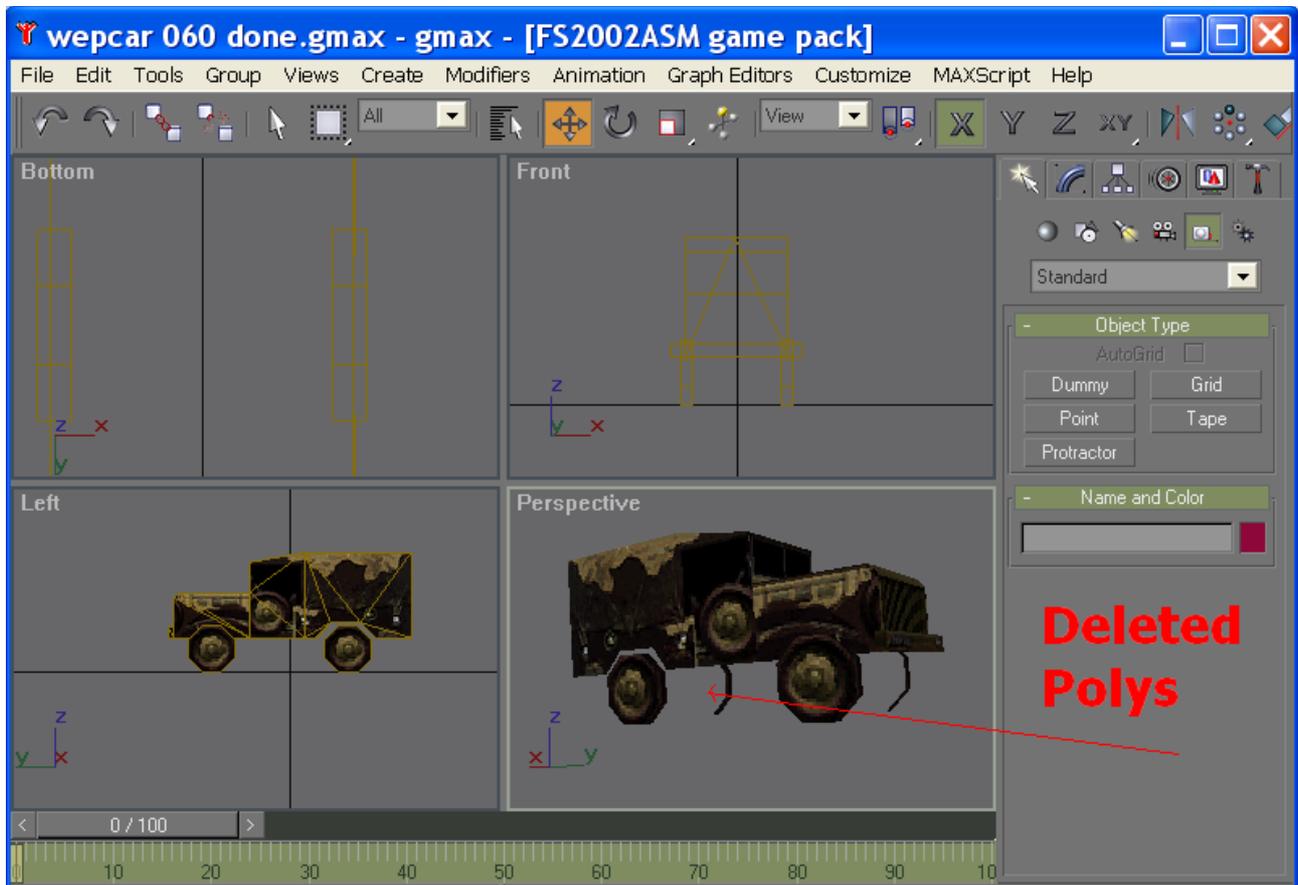
The next lod will be lod_040.

What I did for the lod_040 model was decrease the polygons on all the wheels from 8 sided cylinders to 4 sided cylinders, and delete the front bumper.

The next lod will be lod_010.
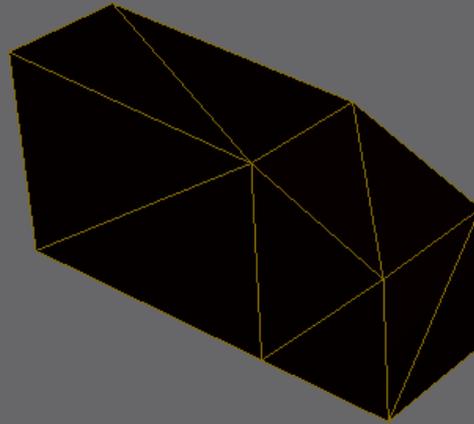
Remove the wheels and then collapse and weld as many vertices you like.

MAKING A DUMMY.

The next stage is to link all the models to a dummy so that each model shows in the game when the graphic card requires them to show.

A lot of lod's makes each model bgl file larger, but the more lod's in the model makes the model less jumpy the game.

We have to make a dummy model and call it by its model name.

The size of the dummy is not important but the X,Y,Z has to be 0.0, 0.0, 0.0.

MAKING THE DUMMY.

Name of Model

x,y,z,
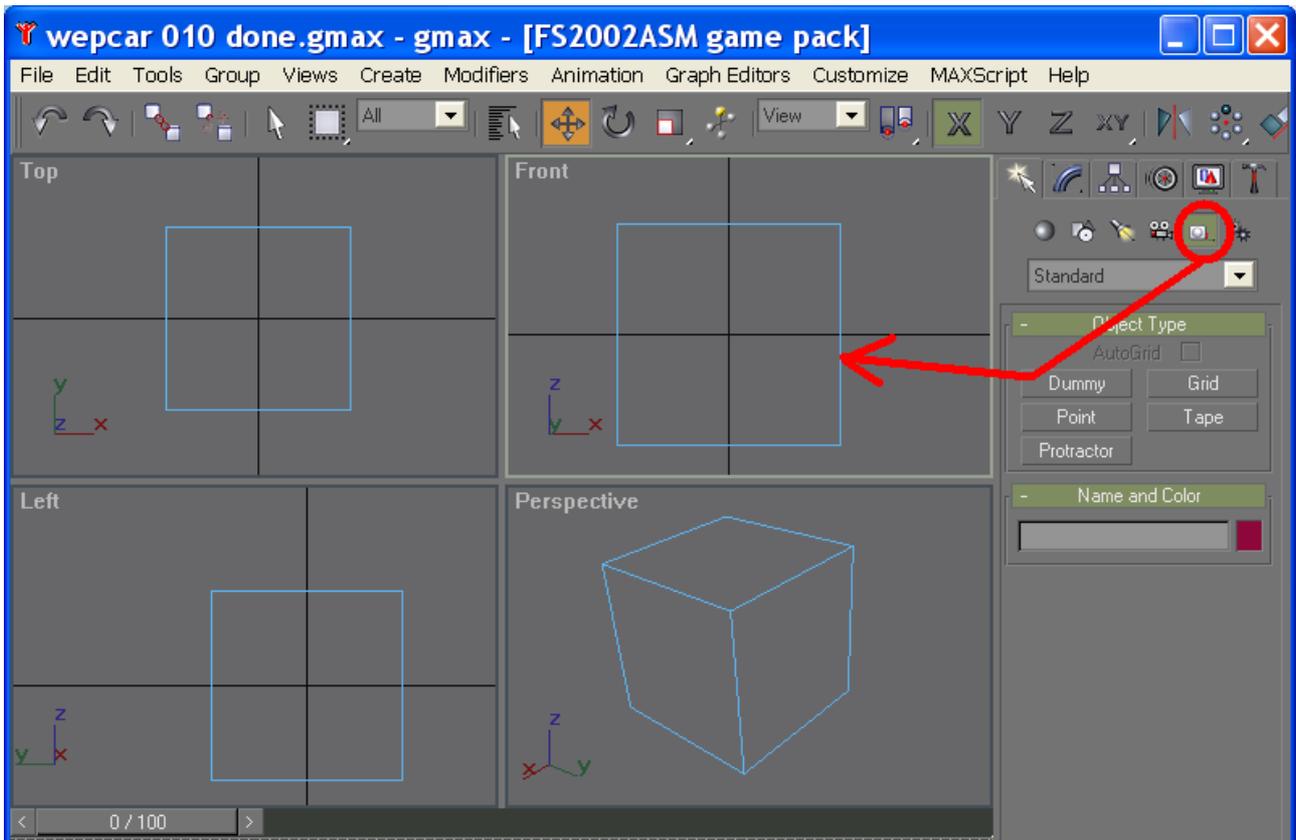
Now we have to link our lod_100 model to the dummy. If you have linked the two objects together you will be able to move the dummy and the model will follow.
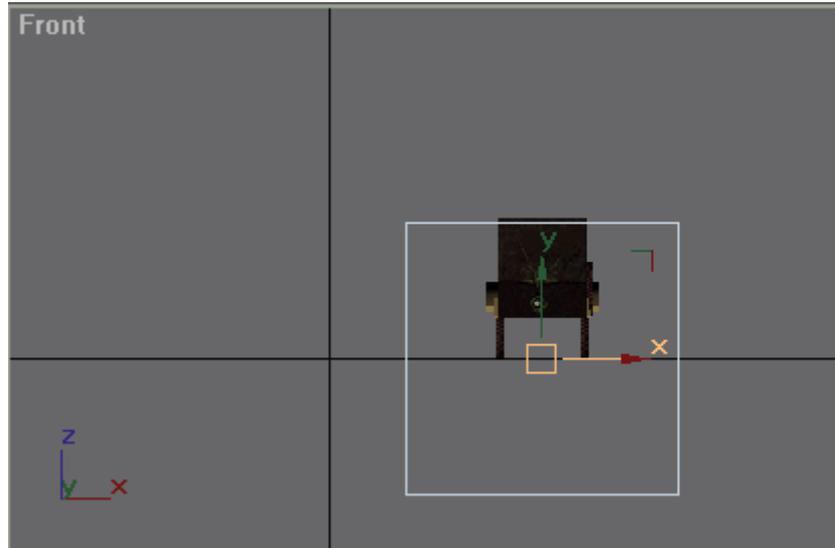
Be sure that the X,Y,Z of the dummy is 0.0, 0.0, 0.0. after you have tested the dummy to make sure the models are linked.

Now link all your lod models to this dummy.

ALL LOD'S LINKED
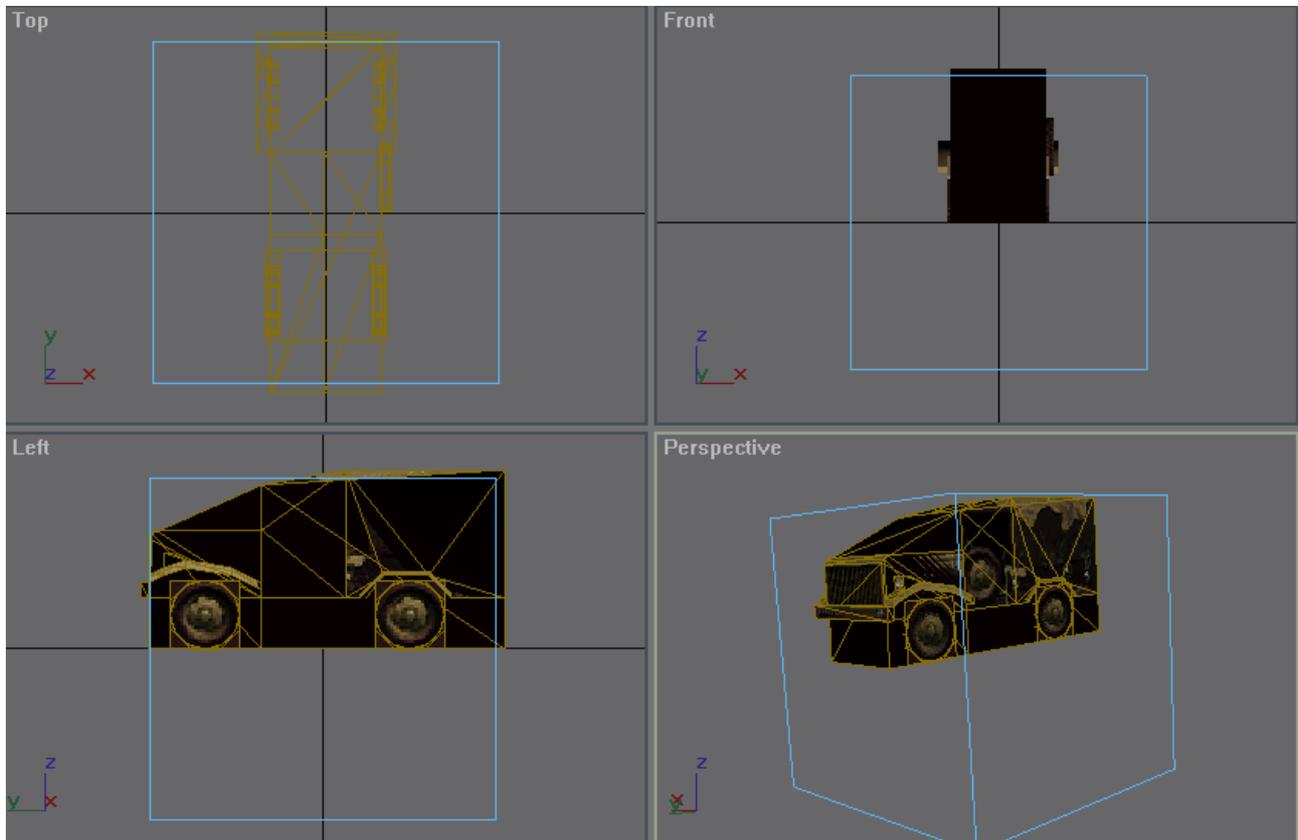
Now you can make your damage models following the same process.

Now compile the models and put them in to your game.

Now you can view the CFS2_mc51x model in modelconverterx and see the model with all its lod's.

You can put this model in the game also.

Remember you can view the damage models in modelconveterx.

About the bat file

scasm **RJ_MC51x**.sca *#the model name#*

ECHO.

PAUSE   *#pauses the cmd so you can read the compilaton messages#*

## save blue text below in notepad and save as bat.

****

scasm **RJ_MC51x**.sca

ECHO.
PAUSE

****

SCREENSHOTS OF LODS IN ACTION

LODS   NO LODS   LODS

LODS   NO LODS   LODS

NOTE SHAPE OF WHEEL.

LODS   NO LODS   LODS

NOTE SHAPE OF WHEEL.

LODS   NO LODS   LODS
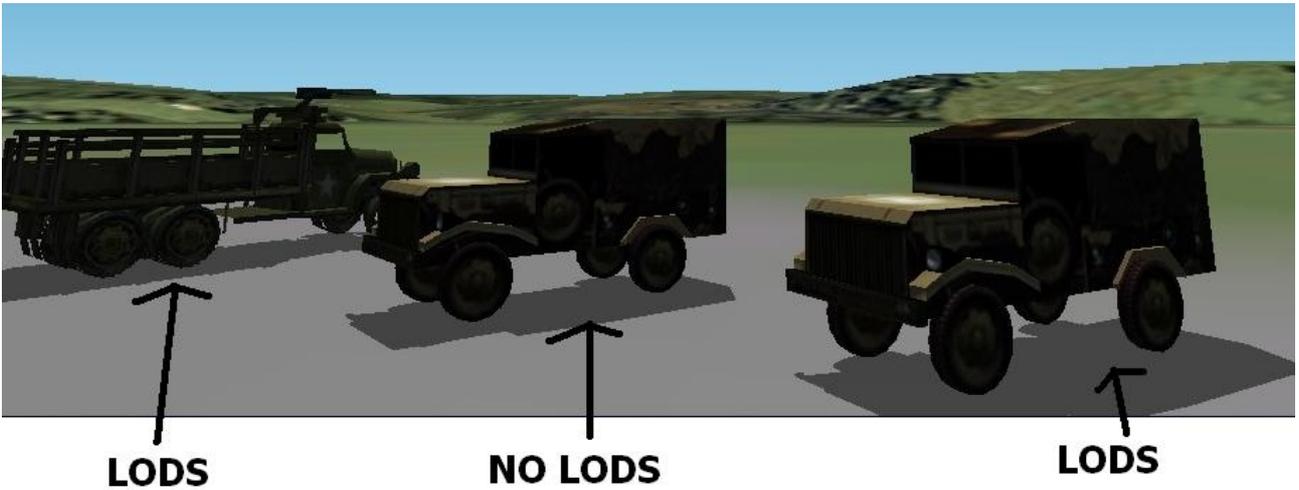
NOTE SHAPE.
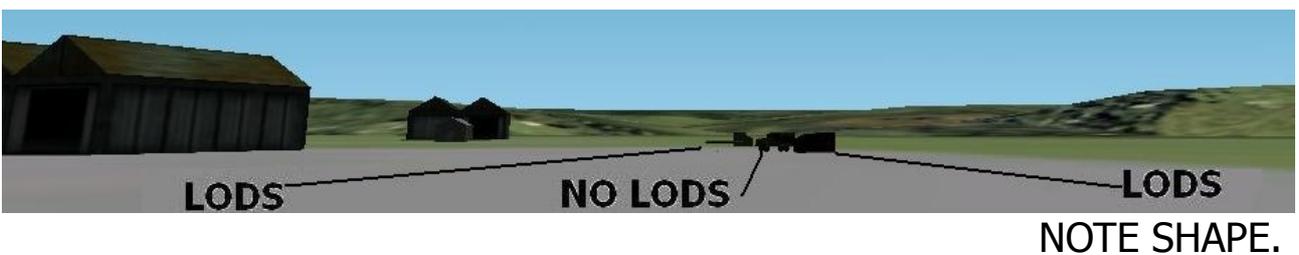
"Note the comparison with the default model ".

Use of flight files to manipulate CFS2

1 Views and windows.

In brief
You can set up and save custom view configurations,
either for use on multi display machines
or to create new and exciting perspectives to historic missions.

The gory details
Flight files are part of the MS flight simulator system that CFS2 shares with its stable mates.
They share the same format as all the editable text files used in CFS2, and so can be easily modified with a simple text editor.
The flight file is used to set numerous simulator variables on a per flight basis.
 By default CFS2 only uses two flight files. They are defair.flt and defgnd.flt which are both found in ..\Situatio * and as their names might sugest are used to set the sim up according to weather you are starting in the air or on the ground. *some of you may find a whole load of other flight flight files in ..\Situatio , These all appear in some CFS1 installs also, they serve no purpose in the sim
Now, unlike it's civil stable mates a default install of CFS2 does not present you with the option to select and load or save a flight file, the only way to make use of flight files in this situation is by making edits to defair.flt and defgnd.flt
 (Words of Warning. MAKE BACK UPS FIRST. Just as with direct editing of mission files , .DP files and other .CFG files, typos and other logic/syntax errors can render CFS2 unplayable or unplayably annoying).
Fortunatly this limitation in CFS2 was corrected many years ago by the great Bill Potvin, II.
His module Cfo Weather 7.5.7 is kindly hosted by Martin Wright ([please buy him a beer and a packet of pork scratchings](#))
Go to
http://www.mwgfx.co.uk/Cfsops/Modules/cfo_weather/Cfo_Weather_75.htm .

or use this link to the file.
Once the Cfo Weather module is installed a button will appear on the CFS2 menu bar and you can access the Select, reset and save flight functions.
So what can we do with these flight files now we can save and load them?

Many things grasshopper, many things.

Take a look through defair.flt You will see that it has sections with headings in square brackets just like mission files, damage profiles and configuration files. The section headers are pretty self explanitory.

[Main]
Title=A title for the flight file
Description=and a description make sense when you have lots saved
AppVersion=7.50.917 #the version of fs that generated the file
FlightVersion=1 #there only seems to be one version

The Main section is the only part that is essential for a loadable flight.

[Tower]
Latitude=
Longitude=
Altitude=+000964.00

[Track]
Latitude=
Longitude=
Altitude=+000131.00

Tower and track are the locations of the view points (cameras) for flight sim's tower and track views. These are blank by default, but CFS2 does read and write into these variables. The external view the sim jumps to when you crash is Tower view.

Skip on down and find the [Window.1] section

You know that you can set up extra view windows during a flight to

show, for instance a spot view of your aircraft or a chase view of a mission target alongside your main cockpit view. Or maybe you'd like to have the main active window showing the target of a strike mission and just a small window in the corner to fly the mission. Maybe you have a multi screen rig set up on a full motion simulator and want the cockpit gauges on one screen and the main forward view sent to a projector.

 One of CFS2's shortcomings is when the flight ends or you are shot down all your view settings are lost. Well, this need not happen.

 (here I have virtual cockpit on my left screen which I sit in front of when I fly, the right screen is showing an undocked spot view which I would switch to chase view in quick combat or create a custom Track view for a specific mission.)

In free flight set up your desired viewing configuration, then use the Cfo Weather module to save a flight file.
 (saved flights end up in ..\PILOTS and this is where Cfo Weather looks when you chose to select a flight),
 locate the [Window.*] sections of your saved file, copy and paste them into a new file then add a [Main] section with a suitable name and description, (this is easier than deleting all the other sections of the saved flight that you will not want to keep). So here below is the flight file that recreates the view configuration shown in the screen shot above, it is really displayed on two separate monitors.

[Main]
Title=test
Description=Virtual cockpit on left screen, spot view on right

AppVersion=7.50.917
FlightVersion=1

[Window.1]
Order=1
Active=True
Undocked=False
Maximized=True
ScreenUniCoords=0,0,8192,6144
UndocCoords=0,0,0,0
ViewMode=Virtual Cockpit
ViewDir=Forward
CockpitZoom=000.50
VirtualZoom=000.31
TowerZoom=008.00
TrackZoom=004.00
SpotZoom=001.89
MapZoom=011.00
SpotDirection=090.00
SpotDistance=+000115
SpotTransitionType=Roll
SpotFastTransition=False
SpotAltitude=+000003
PanHeading=357.80
PanPitch=360.00
PanBank=360.00

[Window.2]
Order=0
Active=False
Undocked=True
Maximized=False
ScreenUniCoords=130,93,2729,2050
UndocCoords=1283,0,1279,1020
ViewMode=Spot
ViewDir=Forward
CockpitZoom=000.50
VirtualZoom=000.50

TowerZoom=008.00
TrackZoom=004.00
SpotZoom=000.93
MapZoom=011.00
SpotDirection=164.61
SpotDistance=+000316
SpotTransitionType=Roll
SpotFastTransition=False
SpotAltitude=+000087
PanHeading=360.00
PanPitch=360.00
PanBank=360.00

The flight file can be loaded into free flight, quick combat or any mission.

Study the various parameters for each window and you will see that each window can have separate values for pan position and separate zoom values for each view mode.

The view modes are Cockpit,Virtual Cockpit, Tower, Track, Spot and Map.

With the CFS2 views menu, we can normally only access the first and last two view modes (Map mode appears as Top Down veiw).
So you see how Tower and Track views can be set and loaded with custom flight files.

If you add the sections that define the Tower and Track locations to your custom flight file and copy in the location data from target objects in a mission you wish to fly, or use data from mission builder if You are building a new mission . You can change the ViewMode of window.2 between Track and Tower. To show a target's eye view of the player aircraft. Changes can be made and saved to flight files with a text editor and loaded into the sim on the fly.

To recap then, you can set up and save screen configurations using flight files.

If you have a quadruple head machine built into a full motion simulator

you can make your set up permanent by copying your [window.*] sections into defair.flt and defgnd.flt. (CFS2 cannot run in full screen mode across more than one monitor but you can run maximised windows on as many monitors as you can plug in and you can get CFS2 to hide the menu bar in windows mode.)

Or you can create custom flight files to go with your missions that give you an excellent target's eye view of the action which you can modify and reload as you fly.

Hawker Tempest

By P.H.F. Burnage

Hawker Tempest V JFH

VIRTUAL COCKPIT

Particular attention was paid to the virtual cockpit. It is pretty close to the real thing.
This gives a more realistic feel of flying at a similar frame rate. While in

virtual cockpit,
you still can use your num keypad keys for quick snap views (faster than
the hat switch). On the left hand side, watch the undercarriage and
flap levers move as you raise your gear or extend your flaps.

DESCRIPTION

The aircraft is fully animated with control surfaces, gear, wheels, flaps,
radiator shutter

(cowl flaps), cantilever shock absorbers, and a unique animation for canopy opening.....
It has breakable parts and a DVC.
It was made from scratch with Gmax.
The flyable aircraft is P.H. Clostermann's, whereas the AI is JFH flown by australian pilot
Bay Adams.

WEAPONS AND LOADOUTS

The Tempest with drop tanks

The Tempest has drop tanks but no rockets or bombs. Although it was qualified for them, they were never used in war-time because they completely spoiled the aerodynamics of the wings.

Hi Robert,

Thanks for your e-mail and asking for the permission!

No problem to use some information from the website, just include source and link as you say, and it will be fine. Please let me know when the magazine is online so I can read it too!!

Best Regards

Christer Landberg

Cited information The Hawker Tempest Page www.hawkertempest.se.

http://www.hawkertempest.se/

LEADING FROM THE COCKPIT:
"A fighter pilot's story"

by Air Chief Marshal H. Moolgavkar
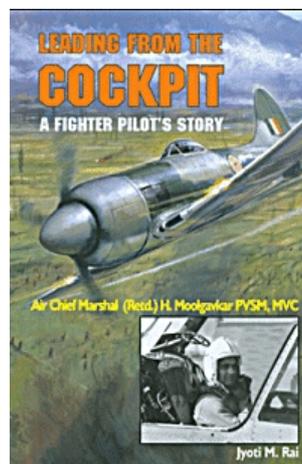
This is the remarkable story of fighters and flying as seen through the eyes of a 'pure pilot'. The book takes the reader through a memorable journey as we retrace the flights of Air Chief Marshal H. Moolgavkar PVSM, MVC (retd), from the time he joined the fledgling Indian Air Force in 1940 till he retired 38 years later as the Chief of Air Staff. The narrative makes for riveting reading.

During World War II, there are first hand accounts from the young officer of what took place in the Burma campaigns. Later, as a Wing Commander in charge of No. I Operational Wing during the Kashmir Operations in 1948, his experiences are again embellished with extracts from his flying log book. His outstanding performance in this theatre earned for him the Maha Vir Chakara but what comes through at all times is his indomitable spirit of 'Leading from the Cockpit'.

In fact the history of the India Air Force unfolds as he gains in rank and responsibility even as the IAF evaluates and acquires new aircraft and establishes new air bases. Considered "Exceptional" in his flying proficiency, Arvind Moolgavkar flew an incredible 66 different types of aircraft (as Spitfires, Tempests, Hurricanes, Canberras, Swifts and more) and was most at home in the cockpit. As Chief of Air Staff, he ensured that the accident rate came down to acceptable standards and implemented major reforms in the personal policies which has had major impact on the Service which can be seen today, may decades later.

Air Chief Marshal H. Moolgavkar turned 90 years of age on 14th August, 2010 when this book was completed.

The Aircraft » Marks » Mark V

Tempest Mk. V (F.5)

The Tempest Mk V prototype flew for the first time on 2 September 1942, with P.G. Lucas at the controls. Flight trials highlighted the need to restore lateral stability lost because of the extended nose and the prototype was modified with a fin fillet and increased span horizontal stabilizers.

It was realized that, although the Tempest V´s performance was less spectacular than anticipated from the other prototypes with there more advanced engines, all of these other aircraft would take far longer to develop to a point where they would be ready for production. A decision was made to concentrate Hawker´s efforts on the Sabre II powered aircraft in order to get the new fighter into operational service as soon as possible. In 1942 400 Tempests were ordered before the prototype´s first flight (originally Mk Is).

Tempest Mk V were built in two variants, Series 1 and 2. These are the differences:

V Series 1:

The Series 1 had its Hispano Mk. II cannon protruding ahead of the wings leading edge.
The joint between the rear fuselage and tail unit was reinforced as a measure, by riveting over with fish plates thus rendering the tail unit non detachable.
The rear spar pick-up end fitting was cranked in order to pick up the fuselage lugs. This was because the fuselage structure of these early aircraft were converted Typhoon assemblies, whose rear spar pick up lugs were too high to allow direct attachment. The top wing root fillet fairing had to have a bulge in it to clear this fitting.

Tempest Mk V Series II:

The Mk V Series 2 were fitted with the new short-barrelled Hispano Mk. V cannon which was completely enclosed.
The built-up tubular steel fuselage rear spar pick-up structure was replaced by a one-piece casting which gave a direct pick up making a much simpler structural joint.
The reinforcement of the rear fuselage was not necessary allowing a detachable tail unit.
Provision to carry two 45-gal drop tanks. The first 100 aircraft's (Series 1 with serial numbers in the JN range) were manufactured at Langley in Buckinghamshire. The first production aircraft (JN729) made its maiden flight on June 21 1943.
The other 300 Mk Vs were built at the Gloster company and were Series 2 with EJ serial numbers. Two further orders were placed, all Series 2 standard with NV and SN serial numbers.
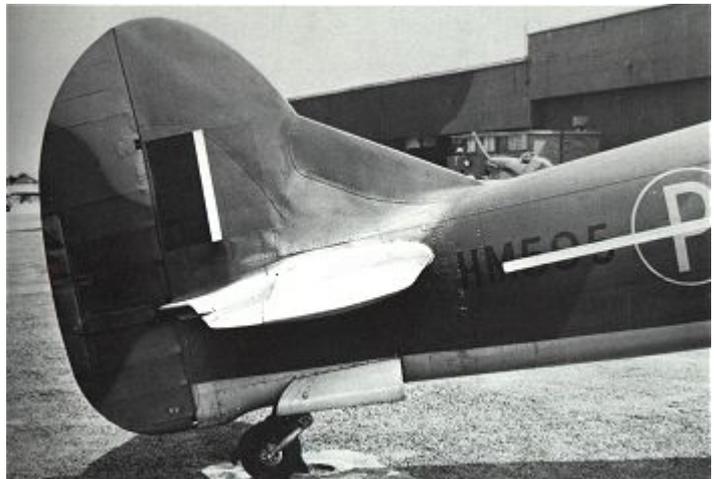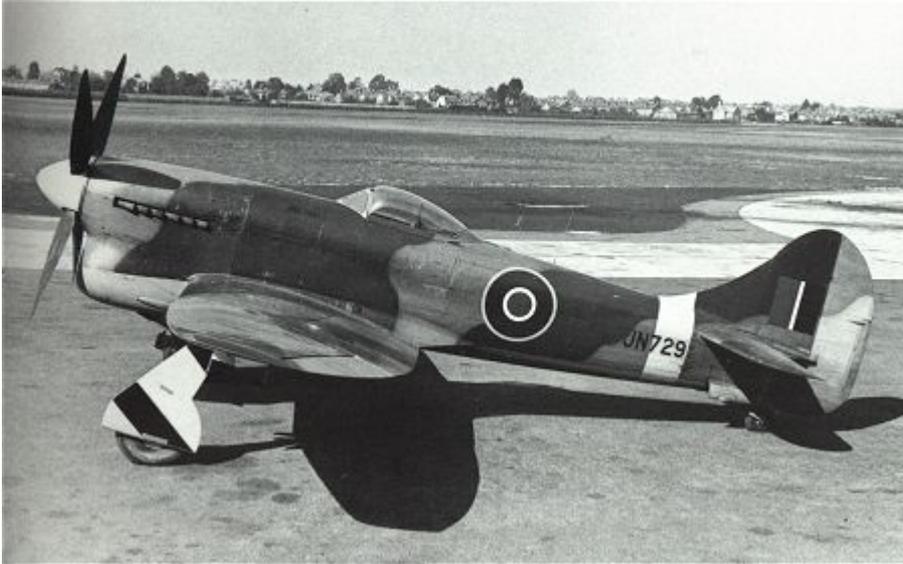
The first Tempest V prototype HM595, with the first stage of modification of the fin to improve directional stability.

Wing span:	41ft 0in
Wing area:	302 sq ft
Length:	33ft 8in
Height (tail down):	16ft 1in
Weight (empty):	9,000lb
Weight (loaded):	11,400lb
Maximum speed:	435 mph at 17,500ft

Time to height:	5 mins to 15,000ft
Power plant:	Napier Sabre Mk IIA/B/C
Max power:	2,180hp
Propeller diameter:	4-blade 14ft 0in
Numbers	

Sources:
Hawker Tempest (4+ Publication)
Typhoon/Tempest in action (Squadron/Signal Publications No 102)
The Typhoon & Tempest Story (Chris Thomas & Christopher Shores)
Chris Thomas
Hawker Typhoon/Tempest, Famous aeroplanes of the World No. 63
Scale Models February 1973, by Bob Jones
Famous Aeroplanes of the World, Hawker Typhoon/Tempest

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	Early Tempest's Mk. V (Serie I) and the Tempest Mk. II prototypes had the 20 mm Mk. II Hispano cannons (identical to those fitted in Typhoon). The barrels extended 8 inches beyond the wing leading edge and they were mounted with short barrel fairings. Two cannons in each wing with 200 rounds per gun.	
	Tempest Mk. V Series II's, production Mk. IIs and Mk. VIs were fitted with the new short-barrelled Hispano Mk. V cannons which were completely enclosed. (They were 12 in. shorter and 25 lbs lighter than Mk. II.) Mk. V and VI had 200 rounds per gun, but Mk. II 162 inboard and 152 outboard.	
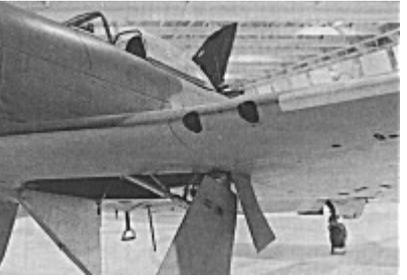
Name	Ammunition	Rate of Fire	Muzzle Velocity	Weight
Hispano Mk. II	20mm x 110 (130g)	600 rpm	880 m/s	50 kg
Hispano Mk.V	20mm x 110 (130g)	750 rpm	840 m/s	42 kg
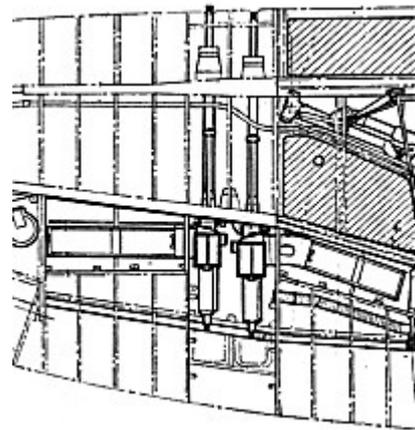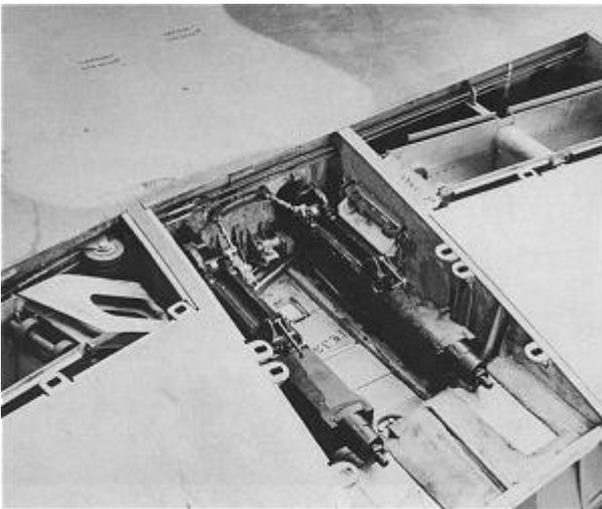
*Views showing the installation of the short barrelled Hispano cannons.*
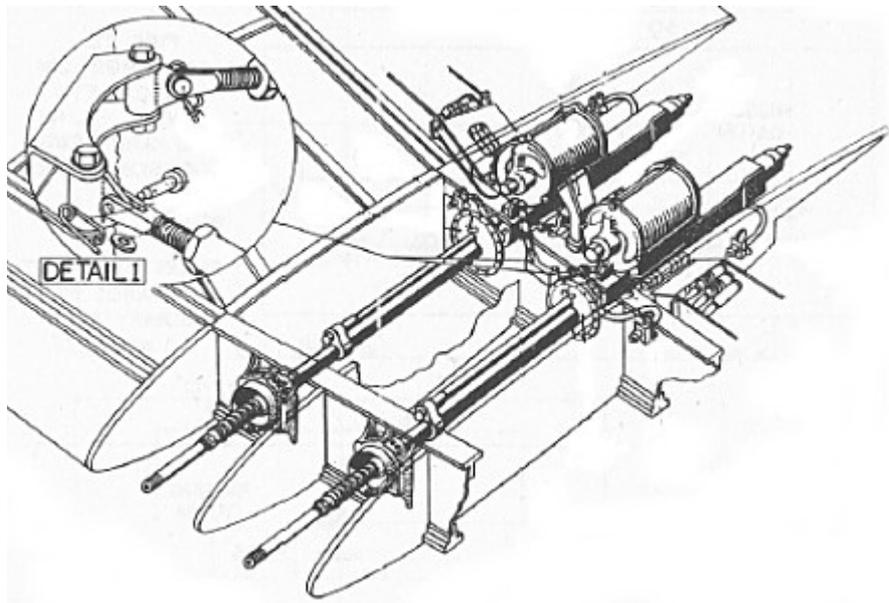
Rearming !

Weapon maintenance

A Vickers 47 mm "P" gun was tested on a Tempest V (SN354) just after the war. The large cannons were faired into slim, streamlined pods and carried on the bomb racks. The tests revealed that the weapon had potential, but no production was undertaken.

Bombs and rockets
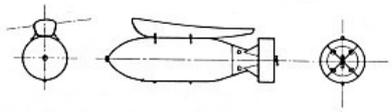
500/1000 lbs bombs were mounted on streamlined fairings under the wings.

Above is photos of a 500 lbs bomb and to the left a GP1000 lbs bomb. Photos were taken at RAF Museum, Hendon, England.

Zero length rocket rails
post-war only

Wartime rocket rails
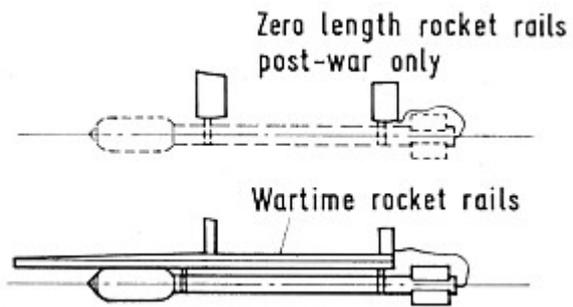
Tempest Mk. V was tested and cleared to carry 8 zero length 60 lb ground attack rockets. But it was never used operationally during the war. After the war, when used on Mk. IIs, the rockets were often mounted on zero length hooks. The rails spoiled the aerodynamics of the wing.
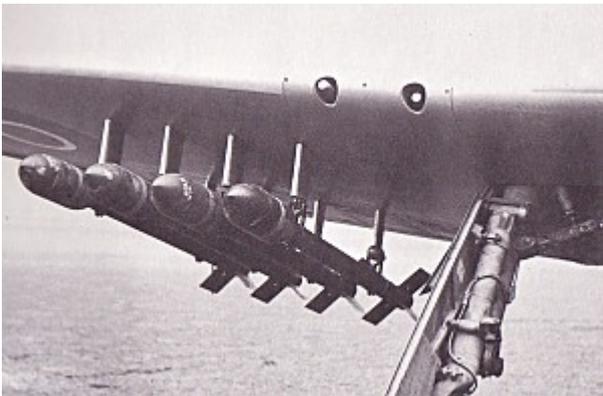
Above rockets mounted on zero length rocket hooks on a Tempest Mk. VI.

On the right a Mk. II with the rockets on rails.
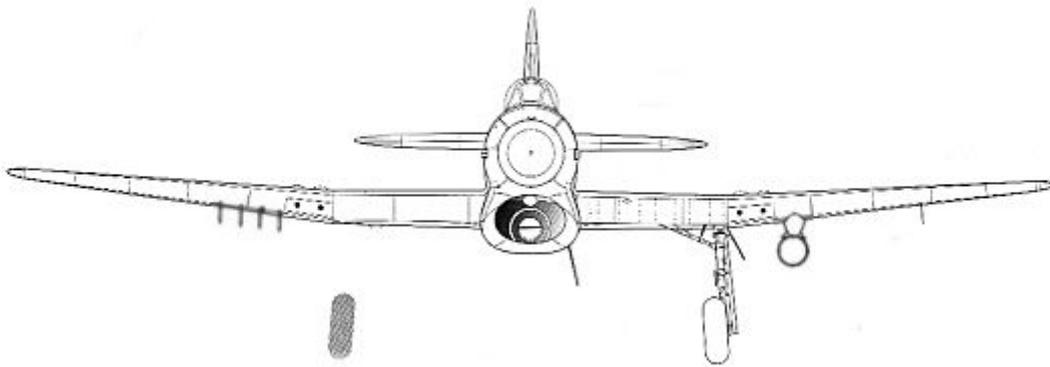
8 x 25lbs RP	4 each wing
8 x 60lbs RP	4 each wing
8 x 10lbs practice bombs	4 each wing
8 x 25lbs practice bombs	4 each wing
2 x 250lbs GP, MC or SAP bombs	1 each wing
2 x 500lbs GP, MC or SAP bombs	1 each wing
2 x 500lbs Mk.2 smoke bombs	1 each wing
2 x SCI 500lbs canister	1 each wing
2 x 1000lbs MC, ANM59 or ANM65 bombs	1 each wing
2 x M.10 smoke bombs	1 each wing
2 x Type R, C or CLE Mk.III supply container	1 each wing
2 x 45 gallon fuel tanks	1 each wing
2 x 90 gallon fuel tanks	1 each wing
2 x 45 gallon napalm tanks	1 each wing

Note: Tempest Mk. V Series 1 could not carry rockets or fuel tanks.

Drop Tanks
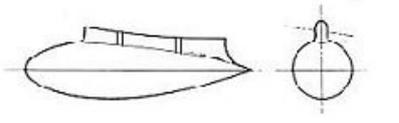
	Streamlined 45 gal. drop tanks were introduced with the Serie II Mk. V's. They increased the range from 740 miles to 1530 miles.	
	For ferrying and long range patrols (mostly Mk. II and Mk. VI) two 90 gal. tanks were used.	
	A more conventional cylindrical 45 gal. drop tank was sometimes used. This drop tank could also be used as a napalm bomb.	
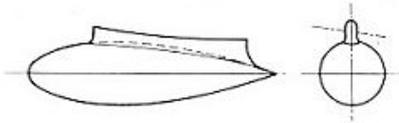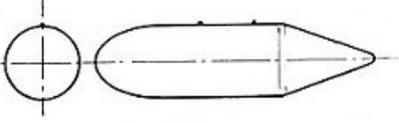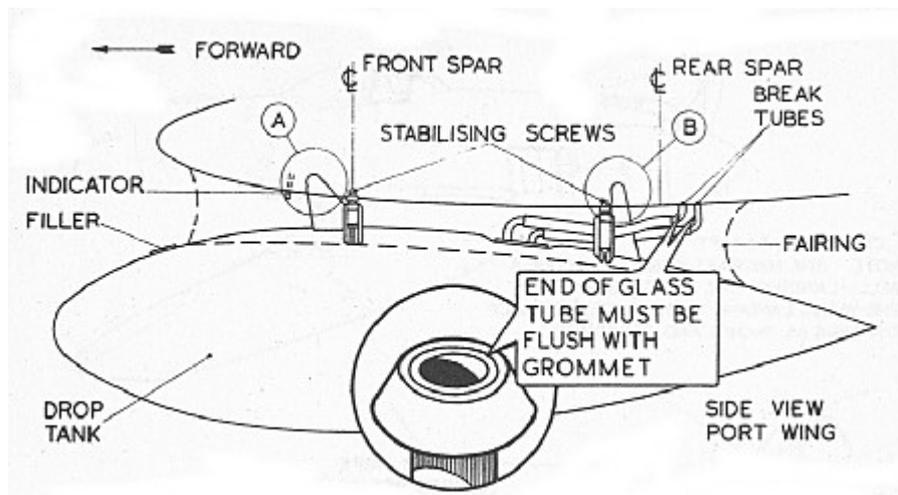
Sources:
4+ Publication Hawker Tempest
Tempest in Action
Christer Landberg
Richard J. Caruana
Arthur Bentley

Typhoon/Tempest in action (Squadron/Signal Publications No 102).
Tony Williams´ Military Gun and Ammunition website.

In the next issue we will use some of Martin Wright gsl tools.
Editorial on another aircraft.
Dynamic scenery for one of Rami's missions.

Hopefully a contribution by another member of our community.
Suggestions appreciated.
Feedback welcome.

Downloads for issue 1, around 200. Thankyou readers.

CREDITS

No Dice for hosting this magazine.
 http://thefreeflightsite.com/CFS2_Magazine.htm

simonu for his contribution.
 Use of flight files to manipulate CFS2"

P Burnage for his "Hawker Tempest"

Thanks!! to Christer Landberg for "The Hawker Tempest Page"
http://www.hawkertempest.se/

and

All the people who host info information on this good old game.
(simulator)

Robert John Sprackland.