Danny Coremans & Nico Deboeck
uncovering the
Lockheed Martin
F. I. C. A. J. B. J. C. J. R.





Top: A Belgian Air Force F-16A is getting prepared for a next Red Flag mission at the Nellis USAF base.

Right: The pitot in front of the radome is heated during flight, to avoid that ice would block the entrance of the pitot tube. Several variations of burned-metal colours are possible on this part.

The lines you see on the radome are static electricity conductors. They prevent the radar from being struck by lightning when flying in nasty weather.

The colour of the F-16 Radome can vary from medium grey to dark grey; the rubber material, with which the radome is coated, is highly influenced by air pollution and absorbs dirty air particles very easily. A brand new radome starts its life as medium grey, but will become darker and darker even over the following months.







Top: Left and right view on the Angle Of Attack (AOA) probes on the Viper's nose.



Below right: the antennas underneath the nose; TACAN lower antenna, Radar Altimeter antenna and Marker Beacon antenna.

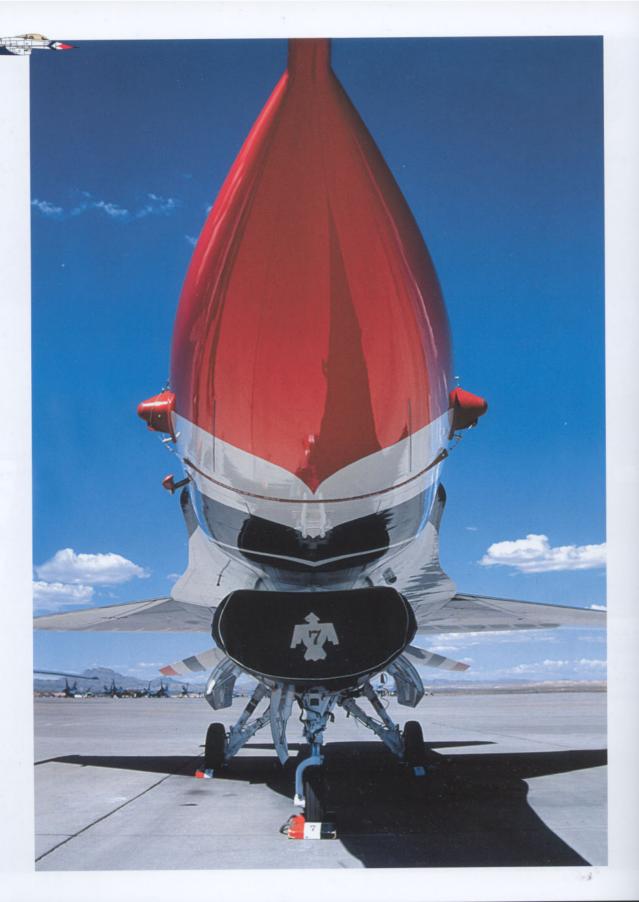


Above and below: the Air Data Probe, which can be found just after the radome.

Note the tiny ECM-receiver in the photo above, a feature only to be found on the Belgian Air Force F-16s as part of the CARAPACE ECM system.









Above: The teardrop shaped fairing houses the Radar Homing and Warning Sensor (RHAWS).

Note one of the Belgian Carapace ECM system receivers above it.



Above: This overall view shows the location of the different antennas.

Below: Note the search light just underneath the RHAWS fearing on the Norwegian F-16s (left side only).



Photos book covers:

Front cover main picture: A Norwegian F-16A gets some fuel during a Red Flag exercise above the Nevada mountains.

Insets top: A Shaw AFB aircraft is maintained in open air at Aviano during the Kosovo War (© Aviano V.I.C.)

Inset bottom: Another fully loaded F-16 is ready to go (© Aviano Visual Information Center)

Back cover: Another day starts with a nice sunrise.



Above: Detail of one of the special painted Aggressors based at Nellis AFB near Las Vegas USA, home also of Thunderbird 7 (opposite page)



Above: This F-16C is in service with the Hellenic AF. It too has a searchlight, but this time it is installed on the right side of the aircraft and more aft located.

Note the position of the rescue arrow compared with all other F-16s, obviously due to the position of the searchlight.

Check out the strenghtener around the RHAWS fearing.





Above and right: an F-16C from Turkish Air Force. Note the four IFF antennas on the nose, which are of a different type than the ones of the European F-16A MLU.

Below and right: Belgium, the Netherlands, Denmark, Norway and Portugal have updated most of their F-16s to MLU standards, and one of the new features are the Advanced IFF antennas just in front of the canopy.







Above: A neat line-up of Vipers.

If you have built a model of the F-16 and someone makes a fuss about the "exact" colour of the airplane, just show him this photo... It feels so good to be right...

Beside the variations of the canopy colours, note also the different shades of grey of the radome and tails on these Aviano F-16s!









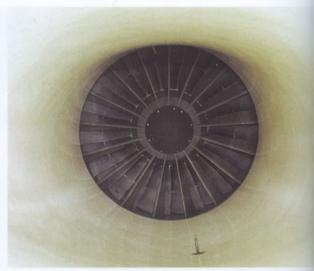


The canopy of the B and D model is, like the single seater, a single piece. Take a look at the details of the hydraulic system to open the canopy. Also note the partially smoked canopy in the photo above left.











Depending the type of engine installed in the F-16, the air intake itself has also a different size: F-16s equipped with a Pratt & Whitney F100-PW-220 engine have the normal intake, while those equipped with the more powerful General Electric F110-GE-129 engine have a wider air intake, like the one on the photo left. It's commonly known as "Big Mouth"...

Above right; notice the "hot" marking; the strut in the centre of the intake is heating the incoming air so there would not form ice on the front engine blades.



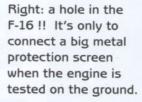


The navigation lights on either side of the intake. The photo above and the two below show the light mounted on top of the Rapport III ECM Threat Warning System antenna, nowadays only in use on some of the Israeli F-16s. The Belgian Air Force F-16s were prepared to be equipped with this ECM system as well, but the government stopped the project while in development. The housings were removed when the CARAPACE ECM-system by Dassault was selected instead.









Below: Stiffening plates on the intake.









Above: The Fighting Falcon gun is the M61 Vulcan cannon. It is a six-barrelled gun, used on most US fighters. On the photo on the left, you can see the first version of the Vulcan cannon port. As shown on the right photo, the recent model of the gun port differs in the vents in front and behind the port.

Note also that the vain between the intake part and the fuselage streak is vertical on the F-16A (left picture) and slightly diagonal on the F-16C models with the GE engines (right picture).



Right: Head-on with the M61 Vulcan

Below & left: Details of the CARAPACE - ECM pod, only to be found on Belgian F-16s.







Above: overall view of the panels on the air intake section. The inset shows where the ground cooling can be plugged in. Electronic equipment easily overheats during tests on the ground without the engine running, so additional cooling is necessary.

Left: The neat artwork inside the communication panel of Avianos 31 FW Flagship (tail nr 89-2001).







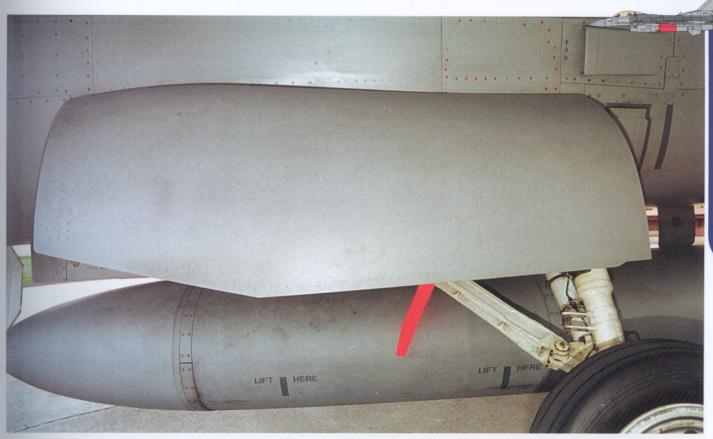


These pictures show the hot air exhaust of the EC5 (Environment Condition System - the official name for the air conditioning system) in its two different shapes. On the right you can see the old type with the small cover, on the left is the way it is covered nowadays.



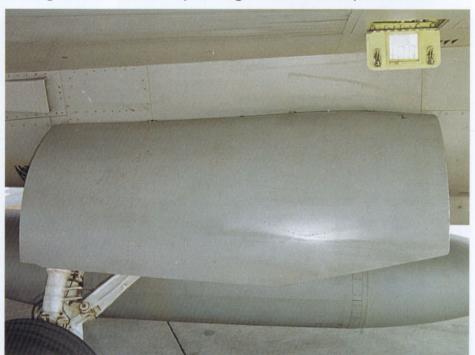


Left: A look at the normal Main Landing Gear Door of the F-16 A/B (and C/D which are equipped with the PW-engine). See the difference with the door on the picture of the opposite page.



The Main Landing Gear Door of the GE-engined F-16 C/D are different than the ones of the other F-16s. These later models have wider wheels to carry the extra weight, and due to the increased size they did no longer fit in the already fully packed wheelbay. So Lockheed had to change the doors as well, by creating an additional bump on the door.









Above: close-up of the right side of a "Big Mouth" C-model. Note the bare metal L-shaped air scoop.

Left: The external power hooked up on an F-16A of the Royal Netherlands Air force. One of the plugs above it enables the Crew-Chief to talk to the pilot when he is preparing his aircraft for flight. Note the small differences between the two pictures.

Right: The EPU Fire Indicator and its Safety Pin. As long as there are white triangles visible, everything is ok. But once the EPU has fired, the white triangles flip over into dark silver.

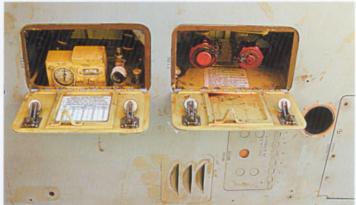


Right: The underside of the starboard strake. At the right, you see the panel that covers the ammunition-loading fixture. Behind it are the EPU (Emergency Power Unit) exhaust and a small window (the tiny circle) where a possible leak of the EPU fuel can be detected. The EPU is powered by hydrazine, a highly toxic fuel.



Right: The hydraulic system check and service access doors opened. The F-16 has two hydraulic systems, A & B, and the access doors of the other system is located on the opposite side of the F-16.





Below: The pilots supply of oxygen is kept in this kind of tanks. You can see on the left picture where it is located in the F-16. Note the circuit breakers mounted on the cover.











A view over the wings of the Fighting Falcon.

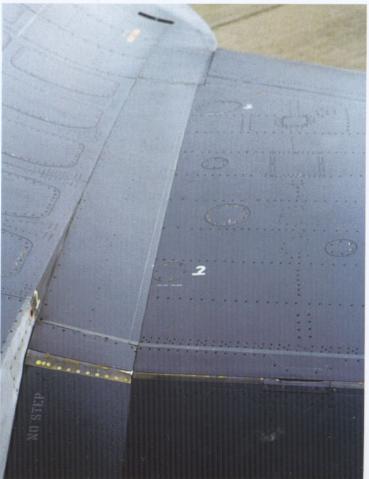
The black stripes that the F-16 often shows are caused by graphite oil coming from the Leading Edge Flap actuators.

Also some local paint shop retouches are often visible in different shades of grey.

Water drops poured through the shelters concrete mortar caused the white spots on the left lower pictures.

Note the lowered flap in the photo above and the details in the photo on the right.







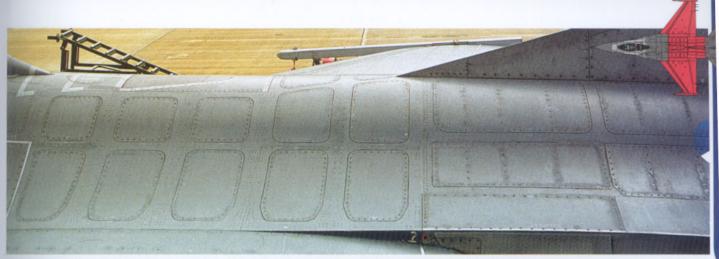




Some more details of the top fuselage. Notice the TACAN antenna behind the light bulb, which enlights the area of the Air Refueling Door.

Below: close up of the lateral Radar Warning Receiver (RWR) and its position on the wing edge of this Aviano Buzzard.

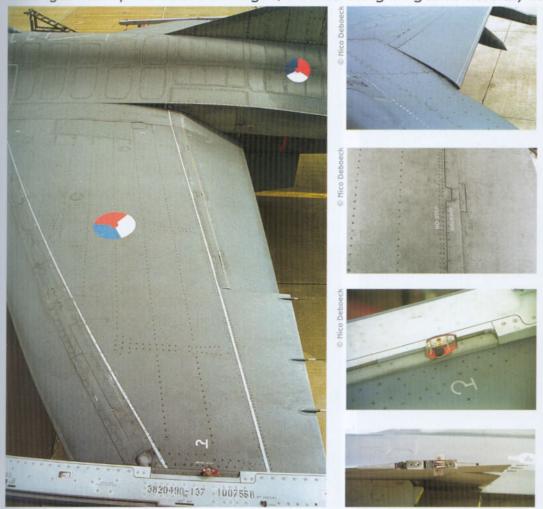


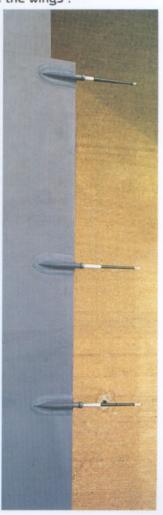


Above and below left: a closer looks at the fuselage fuel panels and a general look of the wing area.

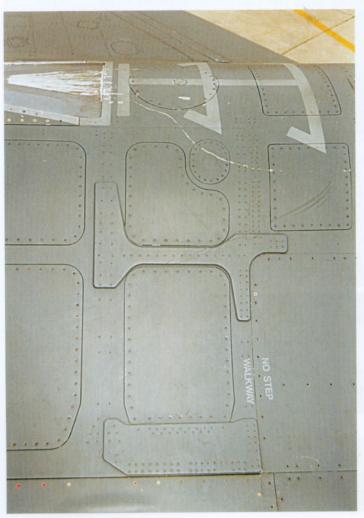
Below center pictures: (top) notice that the leading edge is about 5° above the fuselages streak when the aircraft is on the ground, (middle top) a closer look at the flaperon connection (by the way, "no step" & "walkway" should be turned around), (middle bottom) the Wing Position Light and (bottom) a side view of the wing without the missile rail being installed. Note that the upper and lower Wing Position Lights differ slightly from position between each other.

Below right: close-up of the static dischargers, which deflect lightning strike electricity from the wings.



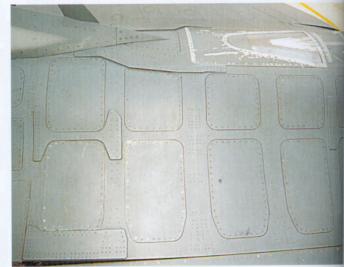








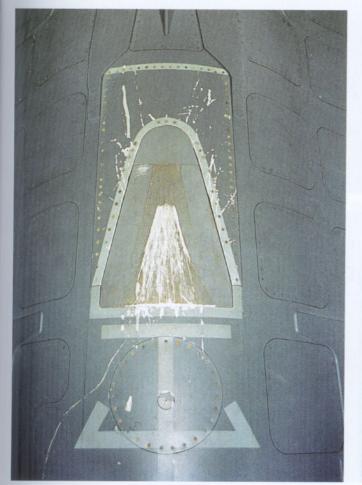
Close-ups of the new structural strengtheners on top of the fuselage. In total, six can be found, which are being placed as a standard measurement on all F-16, as well or A as on C models (respectively top and bottom pictures)





Is your F-16 thirsty and you don't feel like coming in? You just have to call for a flying gas station and it's taken care of.

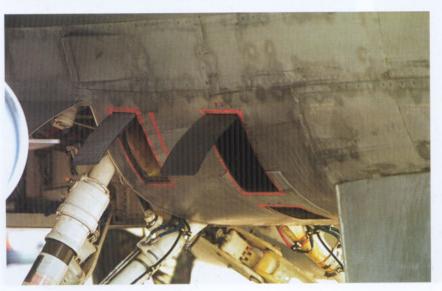
Below: the details of the refueling door and refueling point. Notice that it moves up, folds back and then goes down.











Some open panels on the underside of the aircraft give an easy inspection access to the engine. The metal-coloured cover is the exhaust of the JFS (Jet Fuel Starter) Auxiliary Power Unit (APU).

Left: This photo shows the doors of the Ji in opened position. As soon as the pilot starts the F-16, these doors open and the JFS starts, giving the needed initial power to the main engine. Once the engine is going over 50% RPM, the Jet Fuel starter shuts down and the doors will close.





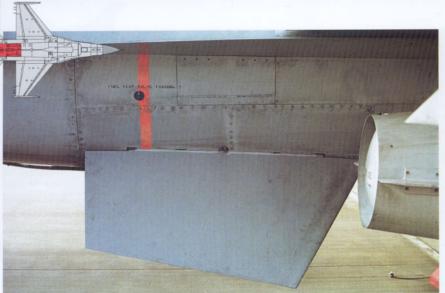
Above: a quartet of Vipers are shooting some Flares. These are used for protection against heat-seeking missiles. The F-16 also carries Chaffs, aluminum strips that are used against radar guided missiles.

Left: the Flare dispenser is located on the port (left hand) side of the aircraft. The two covers in front of the dispenser can also house additional Flare containers.

Below: an empty or full Chaff dispenser can be found on the starboard side of the F-16









Note the relocated position of the "Fuel Vent Valve Ambient Sense Port" on all the MLU F-16s. These sensing points were earlier located in the front of the F-16, above the Nose Wheel Bay.



The Arrestor Hook assembly seen from all possible angles.

On each side of the hook bay, reinforcement plates are located. These are to protect the fuselage when the cable hits the aircraft.

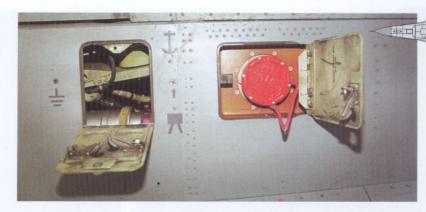
Notice the UHF antenna between the ventral vins.

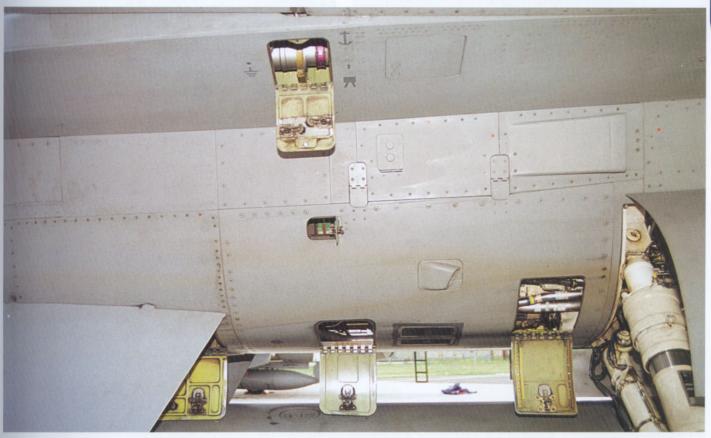




Right: The fuel tanks of the F-16 are being filled through one single refuelling point on the port side of the fuselage. On this side the defuelling of all the fuel tanks is possible.

Below: the open access panel to the left of the main landing gear houses the accessory drive gearbox. The middle one gives access to the engine oil sight gage and the one to the far left (behind the ventral fin) to the wheel brake pneumatic reservoir.

























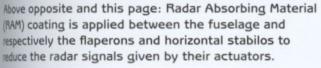


The F-16 is often repainted when it comes out of a D-check; this means the aircraft has gone through a complete maintenance job. When repainted, the US Air Force has the nice tradition to add a small Paint Shop marking to the F-16, taking pride in a job-well-done. Here are a few of the many different marking applied by the painters of the different bases.



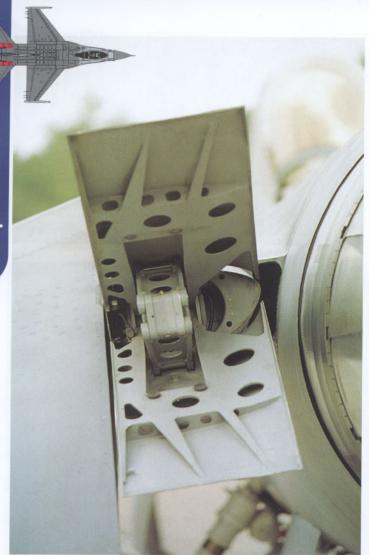






Right: A formation light can be found on either side of the vertical tail. For the modellers among you; Hasegawa's models area little inaccurate here. Just fill up those tiny holes!







Details of the Speed Brakes. In flight, each half can open up to 60°. But during landing, the Speed Brake is automatically reduced to 43°, making sure that it doesn't hit the ground when the aircraft is touching down. Note the detail in the photo below right of the section between the fuselage and the speed brake.

Right page: a Belgian Air Force F-16A at Nellis Air Force Base in Nevada.









The horizontal stabilos of the F-16, with on the photo below left the original "Block 10" type and on the photo above a below right the new version. The new and larger horizontal stabilos can be found on the F-16s Block 15 and up.

For the modellers among you; the picture above shows you that the angle of the horizontal tails does not have to be symmetrical...

A small detail: the stabilo below has three different types of static dischargers applied on it.



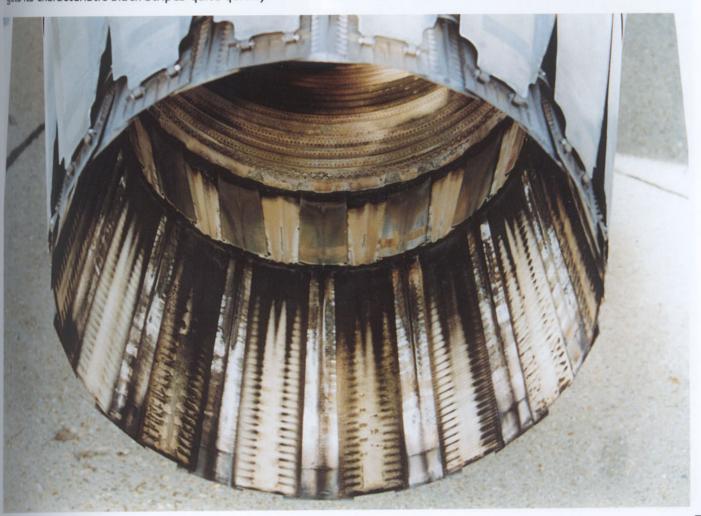






A look inside the exhaust of the Pratt & Whitney F100-PW-220 engine.

The exhaust tube is completely covered with a white ceramic coating to prevent heat from going to the engines other parts. Obviously this coating doesn't stay white for a long time; due to the soot coming from the engine, the nozzle gets its characteristic black stripes quite quickly.



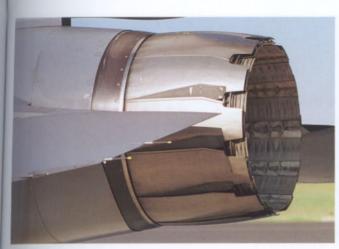




During startup the engine is tested and brought into full military power. This power is partly achieved by closing the "turkey feathers", and so reducing the exhausts exit diameter. When the afterburner is selected, these "turkey feathers" are brought back in normal position, to give full clearance to the additional power.

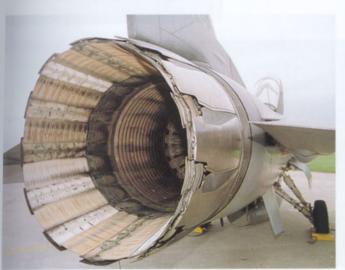








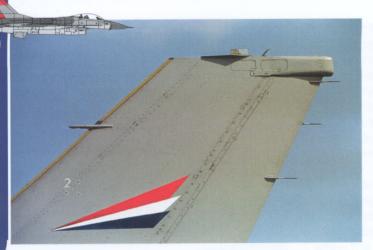
The exhaust nozzle of the General Electric F-110-GE-100 turbofan engine. Once again, notice the big difference of the nozzle of this Block 40 F-16C in fully open and closed position. Block 50/52 F-16s are powered with the f110-GE-129 engine, which gives more thrust.





Below: Every 50 flight hours the nozzle is inspected for cracks that can appear due to the extensive heat of the exhaust. Figure doing this in a white overall...









Details of the vertical tail on the F-16 A/B-model.

Top right gives the base how it originally was, but most European Air Forces have converted their tails with an extended base. Some, like the Dutch, Norwegian and Greek Air Force are using this housing to carry a parachute.

The antennas aside the base are part of the ECM system.

Below left: A parachute packed, ready to be installed.













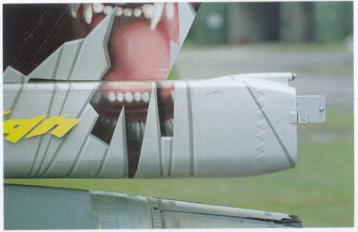
The Belgian Air Force uses the larger base not to house a parachute, but to install part of its ECM system (as does Israel on some of their F-16C).

The base was originally meant to be equipped with the Rapport III ECM system, but eventually the Carapace ECM system was selected.

It took some time to develop and install this system, so in the mean time the space was used as a sort of additional travel pod. In the top right photo, a ground crew member is placing an empty travel pod container in the base of the fin.















The Belgian Air Force 31st Tiger Squadron has the proud tradition to paint one of its aircraft in special Tiger-markings to the annual Tigermeet. The two photos on top of this page show FA-62 (1985), the first F-16 to be adorned with tiger



stripes. Special removable latex paint was used in order to protect the skin of the aircraft, but pealed off very quickly in flight, due to the G-forces experienced at take off. Cool detail; one of the men who painted this aircraft was Danny Coremans...

The two photos immediately above show the 1991-Tiger. This absolutely magnificent scheme inspired a lot of modellers to build the F-16.

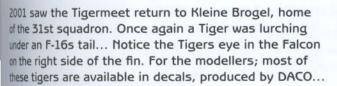
Left and right: The 1994 Tiger tore up the fin of F-16 FA-82. The 31st Squadron won the Silver Tiger Trophy that year.















In 1998 FA-71 was painted with another spectacular scheme for the Tigermeet held at Lechfeld near München, home of JaboG32, flying the Panavia Tornado, also celebrating the German squadron 40th anniversary.



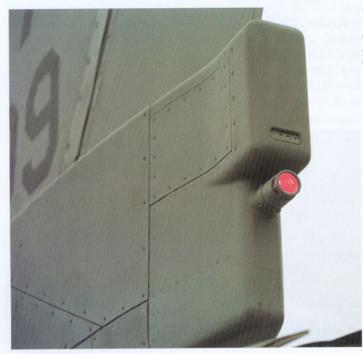












Above left shows the tail marking of Aviano 31 Fighter Wing Flagship. It's the only aircraft which still carries its nose art of the Kosovo war (see Armament pages).

In total six of Aviano F-16C carry a special marking: 16th Air Force, 31 FW, 31 OSS, 31st OGG, 510 FS & 555 FS (all available in the Astra decal range of DACO)

Details of the vertical tail of the C/D-models. Notice the RWR group (Radar Warning Receiver) on top of the tail right and the tail navigation light in the photo on the left.











Some more special markings which adorne other Aviano F-16C. The snake emblem is worn by Fort Wayne based 163rd "Blacksnakes" Fighter Squadron.

Below: This tail is of Hellenic Air Force F-16C, BuNo 88-0143. It is a Block 30 aircraft and was delivered on January 5, 1990. Greece also has some Block 50 models in its inventory. The large base houses the braking parachute, and on the right site of it is a part of its ECM system installed.

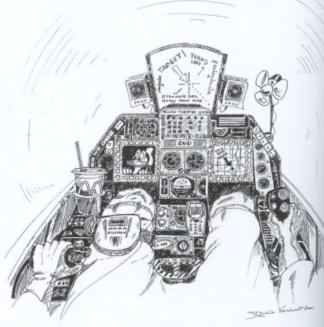


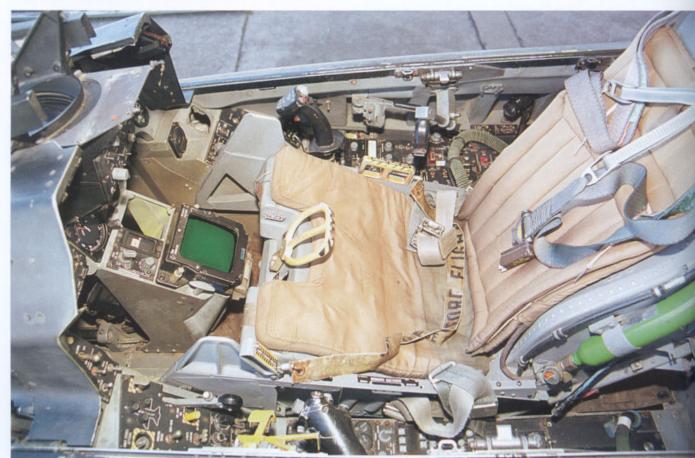




GOGKPITS







The office of the man in control of the Fighting falcon: the following pages show the cockpit of the F-16A as it is before being converted to MLU standards.

This page gives an overview of the central instrument panel. Below the HUD (Head Up Display), sits control panel located.

Underneath, on the left is the Air Speed Indicator and on the right the Artificial Horizon. The green screen just in front of the ejection handle is Radar / Electrooptical display.

The oval shaped handle on the left of the screen is to adjust the Rudder Pedals.









Above: When seated in the cockpit of the F-16 A and looking to the aft left side, this is what you see. The grey crank is to manually open the canopy in case of a power failure. The yellow handle in front, ejects the canopy and with the switch above it opens or closes the pilot the canopy.



Above: When the pilot has closed the canopy, he pushes this yellow handle to the wall of the cockpito lock and seal the canopy.

With the black handle he selects the landing gear to go up or down This handle, which has a red light inside, enlightens during the transaction. In case of an emergency, the pilot can push the butto in the black-yellow striped field to jettison the external stores.

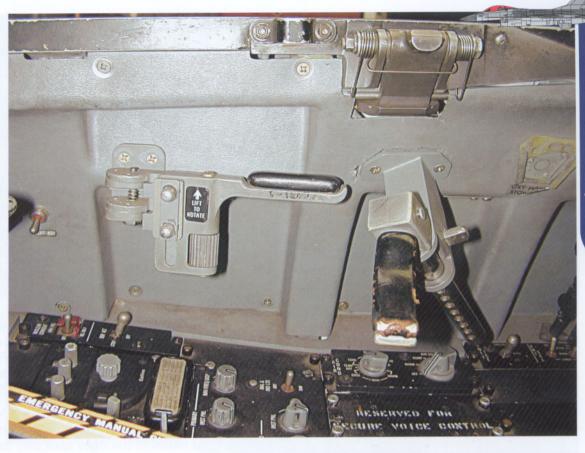
Left and below: details of the left console. The panel that is missing in the photo below is the Communications Control Panel.

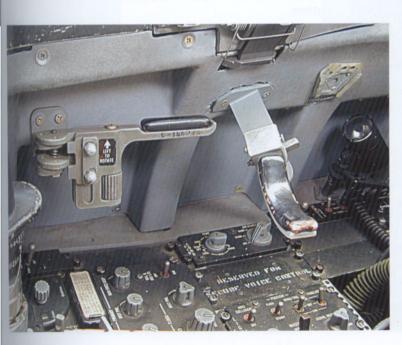




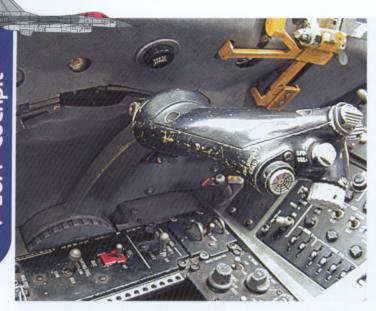
looking to the right, the first thing you see are the two armrests. The pilot puts his elbow in the black curved shape and the front handle, which has to be folded inwards, supports the pilots wrist.

No office without a desk light... the black cylinder in the corner has this function in the F-16 cockpit.











This page: details of the throttle, to be found on the leside of the cockpit. Check out the difference with the throttle of the C/D models of the Fighting Falcon (on place of this book). The Mid Life Update of the A-model halso the newer throttle (see page 55).

Next page: The flight stick of the A-model in detail from nearly every possible angle. The small photo shows the old model of the flight stick only to be found on F-16s of Block 1 to 5. Notice the red trigger in front of the stick. It can be pushed in two steps; the first step will make the camera run, the second step will fire the gun. The red button on top of the stick is the weapons release button.



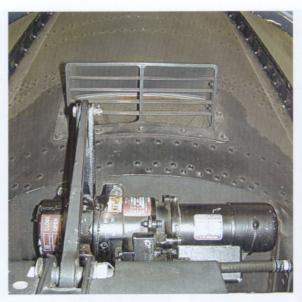










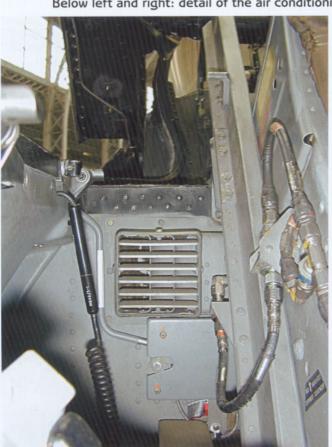


Above: The grid underneath the transparency is the air outlet of the air conditioning system. The system in front is the canopy actuator.

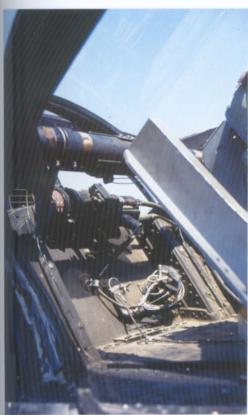


Left and right: note the canopy locking seal.

Below left and right: detail of the air conditioning grids, to be found on either side of the ejection seat.







A closer look at the Aces II ejection seat. It can be found in several modern jets (in different modifications) such as the F-15 Eagle, A-10 Thunderbolt II, F-117 or even the B-1. The seat is designed by McDonnell Douglas. Note the electrical connections behind the seat in the photo on the left.



















The cockpit of the F-16 MLU. The main difference can be found in the avionics of the aircraft; the Modular Mission Computer used in the MLU is smaller, weighs over 50 percent less and is over 740 times faster than the computer in the original F-16, because of the faster processing capacity. In the cockpit, the control panel houses two colour multifunctional displays, up front controls (below the HUD), a new HUD, a Block-50 flight stick and a new throttle. The lighting in the cockpit is compatible with night-vision systems. Note that the panels are black, where they used to be grey in the original F-16s. They have to be in order not to distract the pilot when wearing night vision goggles. Some of these systems, such as the Modular Mission Computer and the colour multifunctional displays might be incorporated in the new production Block 50/52 aircraft for the USAF.



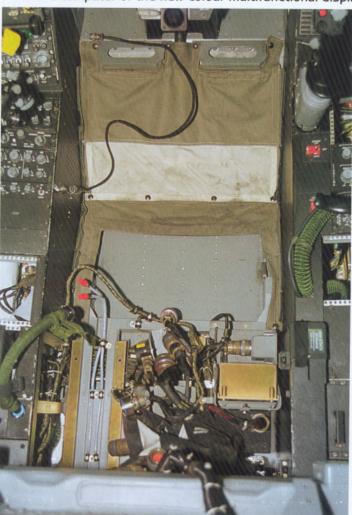






Above: details of the left and right Rudder Pedals. Note the electrical wiring in front of them.

Below: Overall view of the MLU-cockpit with the ejection seat removed. Notice in the left photo the gold coloured to it is the computer of the new colour multifunctional display screen.







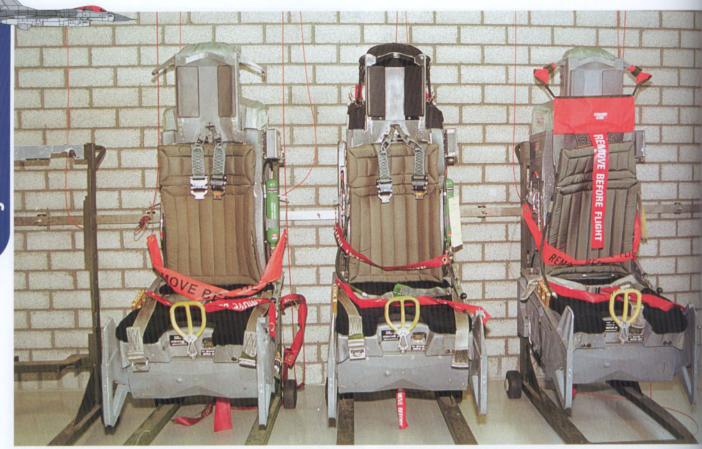
More details of the MLU-cockpit. Interesting to see is the partially black ejection seat. Notice the black walls of the cockpit, for the obvious night vision reasons.















Details of the Aces II ejection seat. Note that the partially black seat has a new kind of environmental sensing pitot on either side on the head, they are retracted and jump out when ejected. On the other seats these are of the original fixed kind.











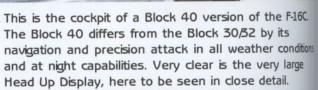




















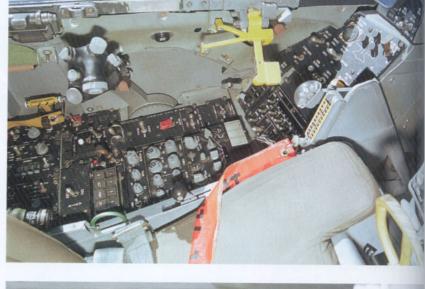






The Block 40/42 F-16s have a slightly different throttle and flight stick (see photo on opposite page). Also check out the completely different panel layout of these F-16s by compared with the original F-16s (see page 48-49).

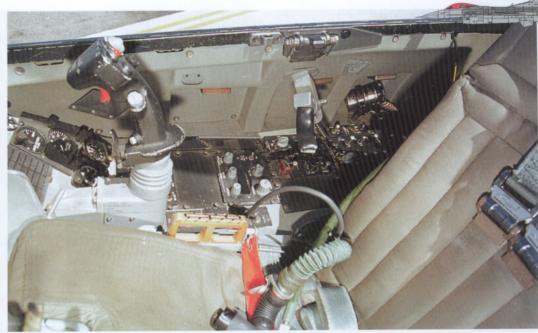










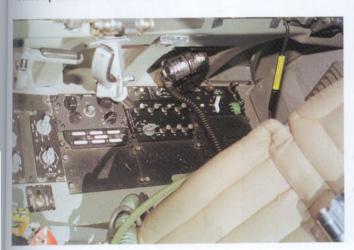


Another difference with the older models, is a new positive-pressure breathing systems built in the Block 40/42. This improves the pilots tolerance for G-forces.

Some Block 40 F-16s are equipped with the Sure Strike data system. This system receives highly accurate information of the targets position, which is given by a forward Air Controller on the ground.

The information then is brought into the weapons system computer and displayed on the HUD by means of a waypoint.

Note the difference between the panel lay-out of the top left picture and the two pictures below. The inclusion of a Voice Control panel (look for the white ovals) is the latest update on the F-16C.











Several different views to the Aces II ejection seat when it is mounted in the F-16 C, and some close ups of the wiring behind the seat. See the difference in the two possible versions of the acconditioning grids, to be found on either side of the ejection seat.

The green bottle on the side of the seat is the Emergency Oxygen Bottle. Also note the canopy pressure seal which goes around the whole canopy platform, and which inflates when the Canopy Lock handle is closed.









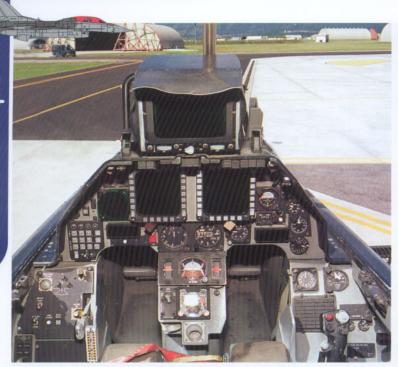






The Cockpit of F-16 D Block 40, 89-2178, flying with the Aviano Buzzards. Note the HUD Repeater in front of the backseat.









One difference between the single and the two set F-16s, is the air conditioning grid. In the latter, do not have the box-shaped grids. Note the detail of the canopy framing in this photo.







Very prominent is the **HUD** repeater on top of the central instrument panel of the D-models backseat. It repeats everything the front pilot sees in his Head Up Display. Note that only on the left side there's a handle to get in the cockpit.

Aside the stick in the F-16 B/D is a selector switch for the ejection seats. Not always is it needed that both seats eject in the normal sequence.

model was also built to give people who write books on the F-16 the possibility to experience what they are writing

We feel the F-16 D

about... please don't hesistate to call us...









GANDING GEAR



Above: This Turkish F-16 was flown by the General Dynamics test pilot on the Farnborough air show, back in the 90s. It shows the way the landing gear folds: the nose gear turns back and the wheel rotates 90° to fit in the well. The main gear folds to the front simultaneously.

Left: Looking at the nose gear door inside and outside (below).

Below, left: work is being carried out on the no gear of this F-16. Note also that the gear door is missing.







Taking a closer look at the nose gear, looking forward and aft. F-16C/Ds Block 40 & up and MLU F-16A/Bs have their landing lights installed on the nose gear door. The landing lights used to be positioned on the main landing gear, but because the FLIR pods mounted on the air intake blocked the lights, they were relocated to the front of the aircraft.



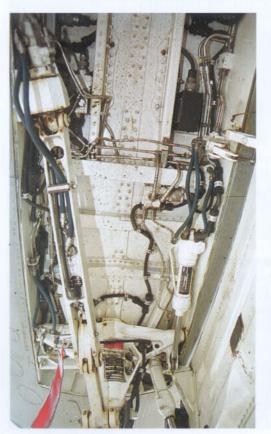
Left: Notice the unconnected Steering Link, done so when the aircraft has to be towed away (to avoid damage to the Steering Actuator).

Right: another look at the nose gear assembly, this time without any F-16 attached to it.





Some details of the nose gear wheel well. Modellers among you will love these pictures ...







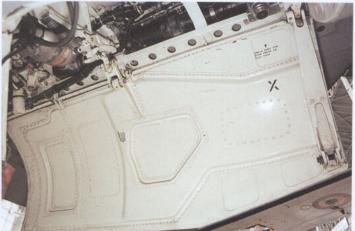








Above: The left main gear strut looking forward, with the hydraulic lines feeding the brakes nicely visible. Below: inside details of the main gear door of the A model (left) and C model (right). Note that the actuator that close the door is removed on the left picture. A front view of this actuator is given on the opposite page.



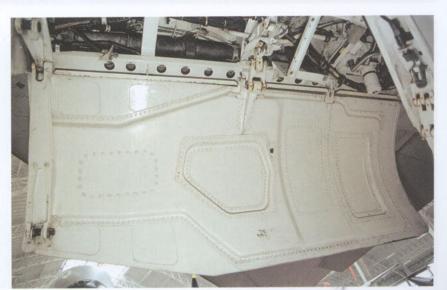






On this page some details of the right side main landing gear and its door.









Left and above: Some details of the inner side of the landing gear wheel & brakes.

Below: The F-16 has had some different wheels over the years. The wheel here below and left under is the older type previously to be found on the A and B models. The one in the middle is used now the F-16 A & B. Right picture gives the rim of the wider wheels used these days on the C-model, Block 40 and up.









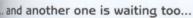
ivery landing of the F-16 takes its toll on the ires. So once every few weeks there's a need for a new set.

Changing a wheel ...



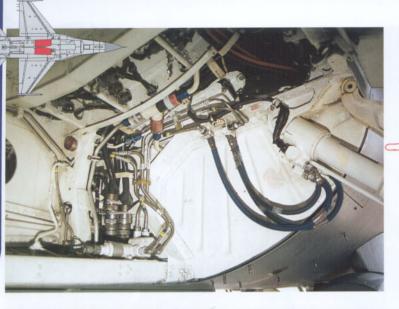


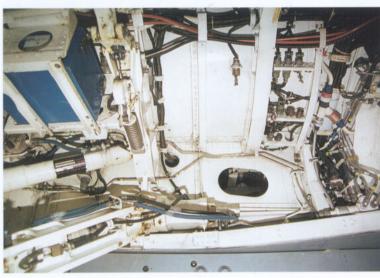
That's for sure...



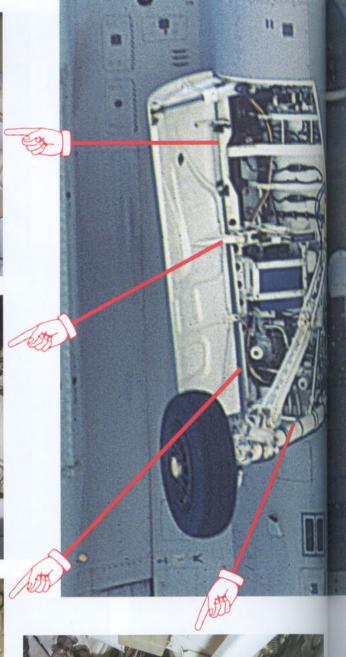




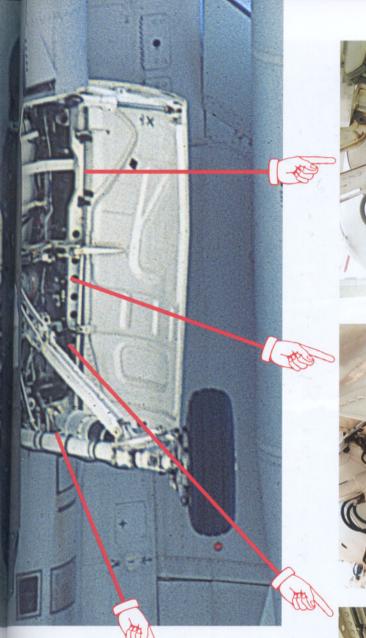








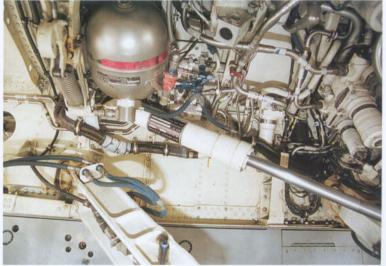






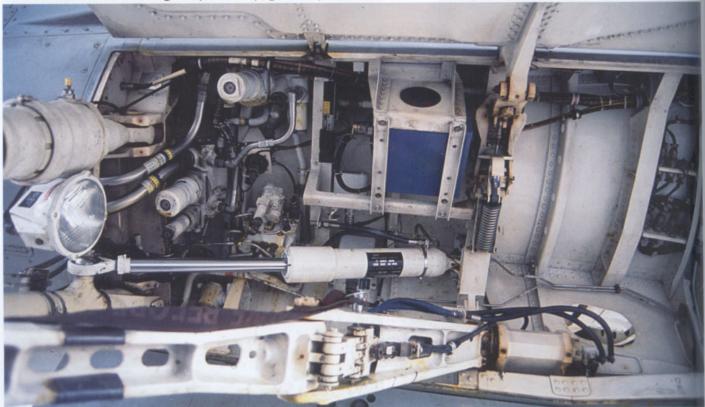


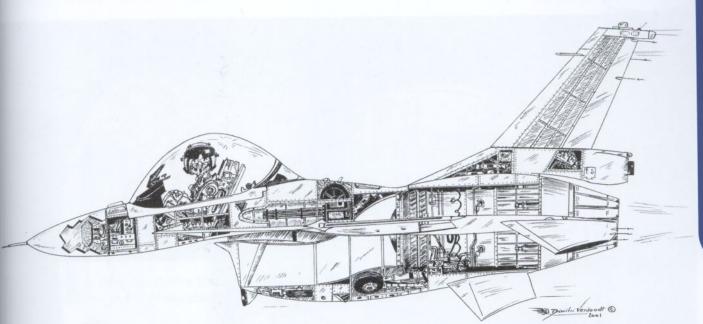






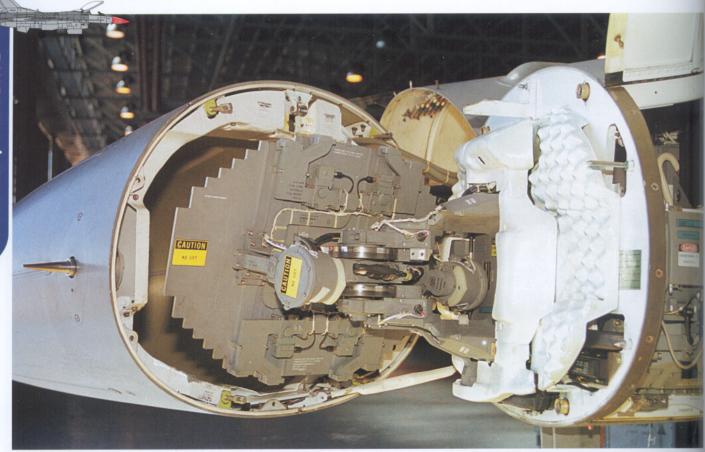
In case it was too confusing the previous pages... top is left hand Main Landing Gear bay, below is right hand wheel bay





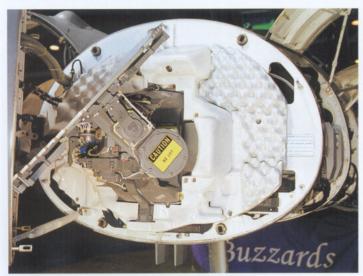
F-166 in MAINTENANCE

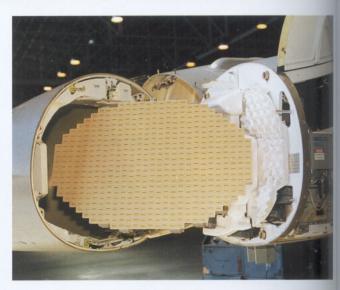




The F-16 is equiped with the APG-66 radar made by Westinghouse. Acces to it is quite easy with only the radome to be pushed to the right.

In the middle of the picture, the tilt motor of the radar antenna can be seen. Note also the Radar Absorbing Material (RAM) in front of the bulkhead. This is to protect the pilot from a high dose of radiation.





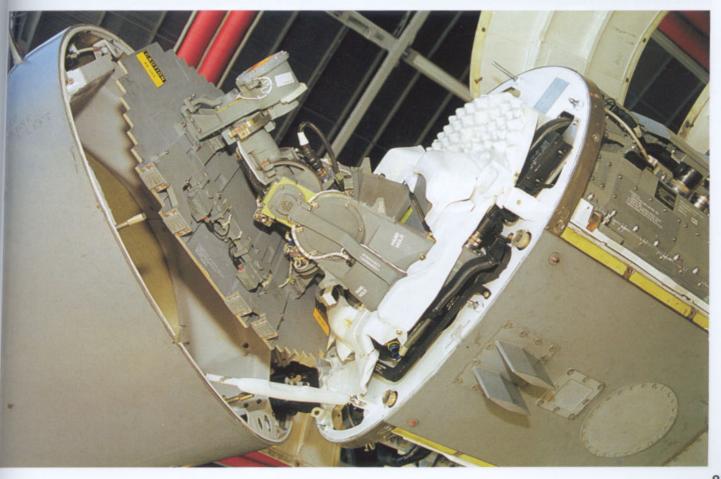
Above: Note the four structural fasteners, on which the radome is firmly locked by on the fuselage. The two black antennas mounted on the lower fuselage are clearly visible. One is an IFF antenna, the other is a TACAN antenna

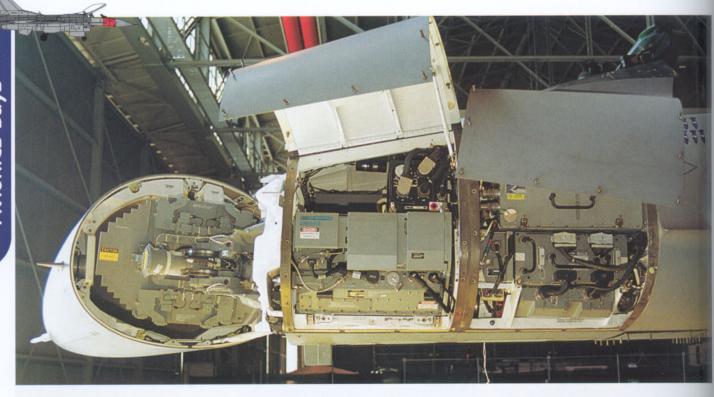


More details of the APG-66. Notice the details in the inside of the radome in the photo above.

Below: details of the underside and the cable lines between the pitot & AOA and the computer.

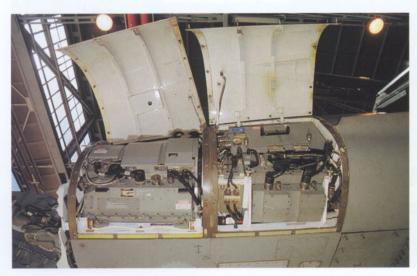


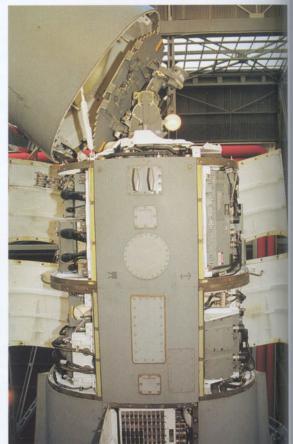


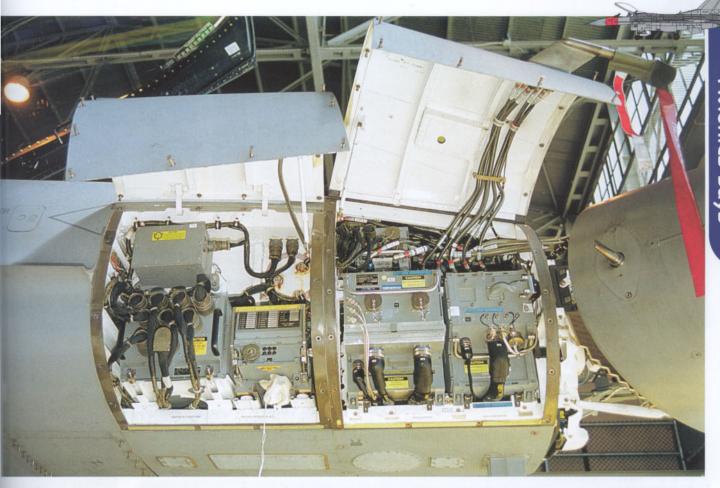


Open avionics bays on the port side of the Fighting Falcon. The front bay houses the Radar Transmitter (grey unit) and the HUD electronic component. The second bay contains the Radar electro-optical unit.

Note the details of the doors in the photos below.









Above and below: the Avionics bays on the starboard side with the Central Air Data Computer in the front bay. The aft bay contains the HUD set, the flight computer and the Inertial Navigation Computer.

Left: The circuit breakers related to the avionics. This hatch is located right underneath the ejection seat.







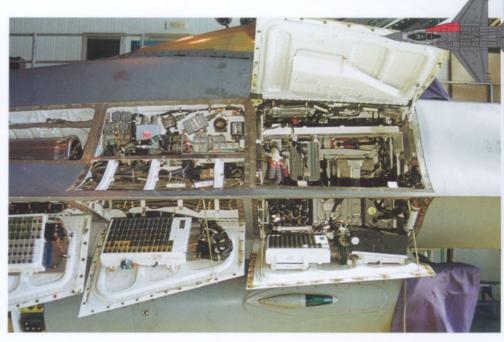
Above: the Emergency Power Unit (EPU) of the F-16 makes sure that the aircraft can be handled when the main generator fails. The EPU contains a turbine and uses highly toxic hydrazine to drive a generator and hydraulic pump. Above the EPU the ammo drum for the M61 Cannon can be seen.

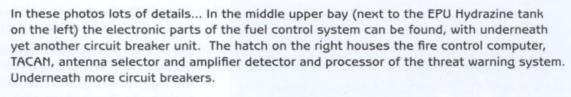
Right, below: Equipment bays in front of the main gear with on the left the circuit breakers. Above these, comes the oxygen tank (see page 18). Underneath the strake, fuel and hydraulic piping can be seen.











Below: details underneath. The (closed) panel aft houses the ammo loading fixture.









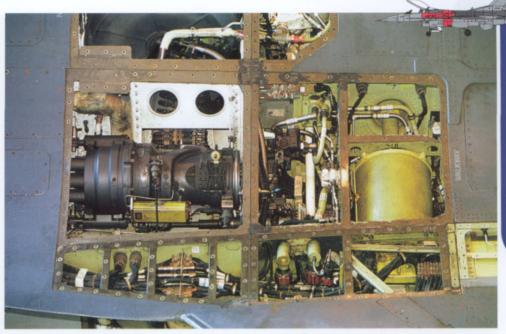


Above, left: the open panel above the gun port reveals the conditioned air delivery ducting.

Left: These open panels show the ECS equipment (Environmental Control System) which provides the heating (or cooling) and the pressurisation for the cockpit, the G-suit of the pilot, radar and avionics bay. The white container is the water separator.





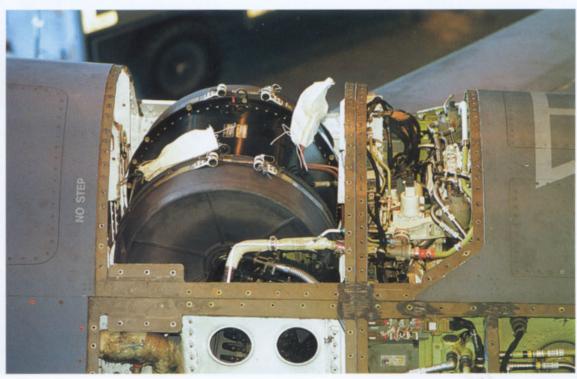


Below left and right: The ammo drum for the M61 cannon. The gun makes, with a speed of 100 rounds per second, quite nasty holes...

The zinc chromate cylinder (also visible in the picture above) is the port hydraulic reservoir. Left of this, the leading edge flap transmission and the hydraulic gun drive unit is installed. In the panel behind the ammo drum you see the leading edge flap control and drive unit.

Note the position of the in-flight refuelling door.















Some more photos of the Viper in maintenance. You can see the leading edge flap drive shaft and rotary actuators uncovered.

The wing is connected with the fuselage with just 4 sets of two bolts on each side top & bottom.

The top photo on the opposite page shows also the starboard flaperon hydraulic actuator.

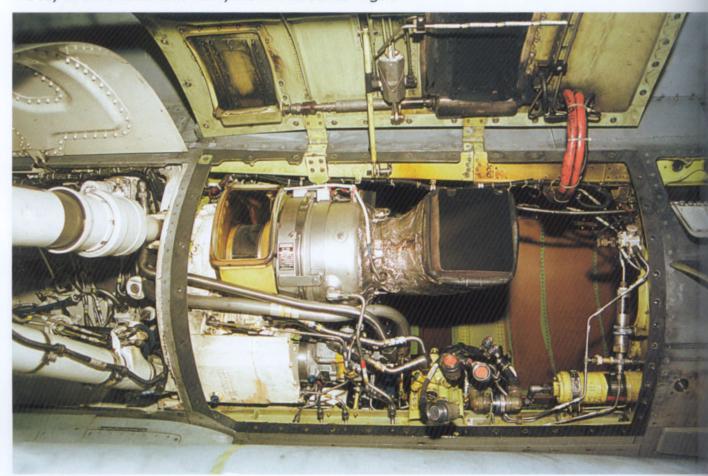


Detail of the starboard inspection panel. The open door on top of the photo houses the defuelling receptacle.



The port inspection panel. Note the colour of the Auxilian Power Unit (APU) exhaust.

Two inspection panels aft of the main gear make an easy access possible. The bay on this side contains mainly the Jet Fuel Starter engine.









Above left: The anticollision beacon on top of the vertical tail.

Above: for those among you who think this is a pitot on the vertical tail... well, it isn't. It's actually a light that enlightens the area of the Air Refuelling Door on top of the aircraft. This makes it easier for the tankers boom operator to pinpoint the "flying boom" into the receptacle of the F-16 at night.

ove and right: Some in is removed from evertical tail, owing the hydraulic cumulators.







The engine removed. Check out the overall view of the engine compartment. On top of the centerline is a rail from which the engine hangs.



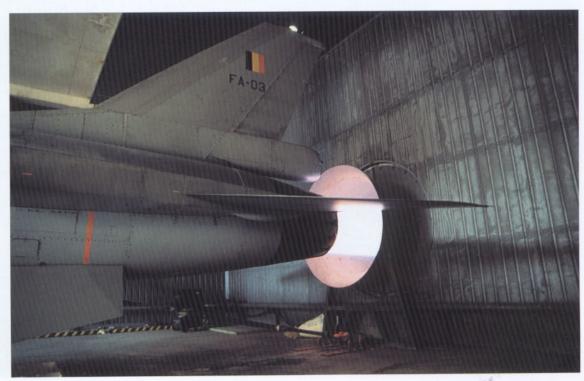




Above: this is what the Pratt & Whitney F100-PW-220 powerplant looks like.

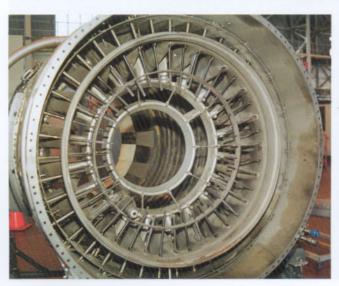
The photo in the inset shows the f100-PW-229 variant.

Once everything is back in place, the engine is fully tested; Belgian Air force FA-03 in full afterburner and still ... not moving one meter further.

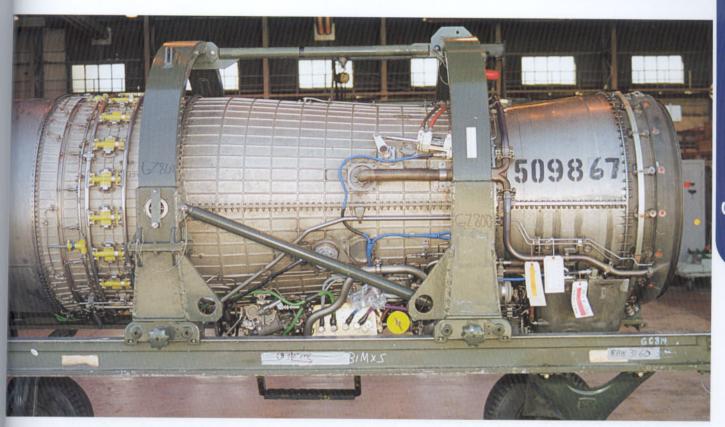






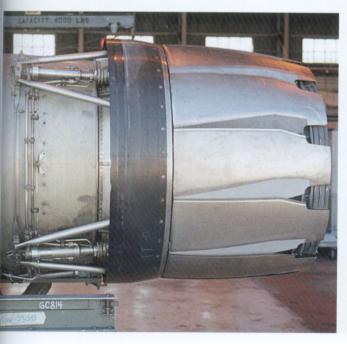






The General Electric F-110-GE-129 engine taken from all possible angles.

The picture on page 94 below left gives an inside view of the afterburner ring.







One of the more special paint schemes which were designed by Danny when he was a Crew-Chief at 349 Sqn.

For the occasion of the 50th anniversary of this squadron, the first and latest aircraft were combined together.

A cold morning during winter season...

You can stay in bed or you can take care of your favourite airplane...

Crew-Chiefs are strange guys...

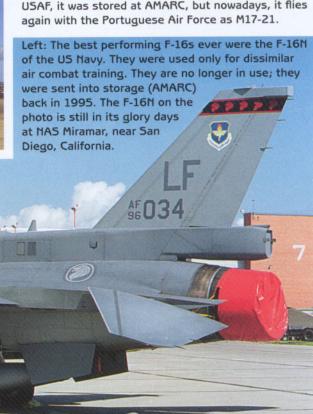






Singapore AF F-16D, serial 96-5034 seen at Luke AFB. It's a Block 52

Above: a lot of F-16s have been placed in storage at AMARC, awaiting an unsure future. Some will stay there, others will be granted a second life. The F-16 in front (83-1090) got lucky; after its career with the USAF, it was stored at AMARC, but nowadays, it flies again with the Portuguese Air Force as M17-21.



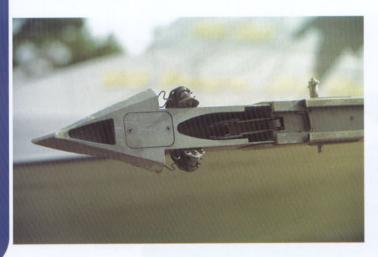






The F-16 is a formidable weapon that is can be used in both air-to-air and air-to ground missions. This lightweight fighter, doing its mission in any kind of weather, by day or by night can carry an extremely large variety of weapons. In the photos on this page, the F-16 is carrying AIM-9L Sidewinder air-to-air missiles. The C-model on the opposite page carries an AIM-120 AMRAAM on its wingtip rail.









On these two pages, some details of the hard points for the Sidewinder missile. As you can see, the under wing store has to be folded upwards in order to fit the missile. Once the missile is in place, the store and the necessary connections are put in place.

Notice that some of the photos show missiles with fins, some without. A blue line around the Sidewinder indicates an inert missile.























The AIM-120 AMRAAM (Advanced Medium-Range Air-to-Air Missile) missile has recently come into service to replace the AIM-7 Sparrow. For this, the F-16 is equipped with different rails on the edge of the wing. The AIM-120 is employing active radar target tracking, proportional navigation guidance and active Radio Frequency target detection.

Notice the Ford sign on the F-16C of the 555th "Triple Nickel" Fighter Squadron; This aircraft, with tail number 351, flew the 1000th mission for the 555th F5 during Operation Allied Force, and the 351 Cu Inch engine was a famous Ford Engine... hence the relation between them.



















The AGM-65 Maverick is a tactical, air-to-surface guided missile. No armor, air defense, ship, transportation equipment or fuel storage facility is save from it. The Maverick was used during Operation Desert Storm and, according to the Air Force, was able to hit 85 percent of its targets.





The missile has "launch-and-leave" capability that enables the pilot to fire it and immediately take evasive action or attack another target as the missile guides itself to the target. Mavericks can be launched from high altitudes to treetop level and can hit targets ranging from a distance of a few thousand feet to 13 nautical miles at medium altitude







The AGM-88 HARM (High-speed Anti Radiation Missile) is a supersonic airto-surface tactical missile designed to seek and destroy enemy radar-equipped air defense systems. The AGM-88 can detect, attack and destroy a target with minimum aircrew input.









Photos above and below: F-16s carrying an ACMI pod. This is an airborne air data sensor, electronic altimeter and inertia sensor; in this it can send data to ground receiving stations. It is also used in training Air Combat Maneuvering, to judge the effects of simulated weapons fire and provide data for debriefing the pilots performance.





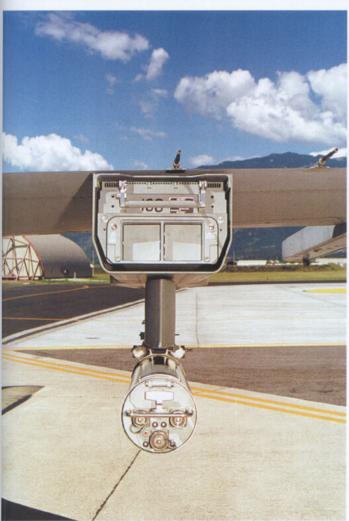
Below: The F-16 is stealthier than you might think, due to the Radar-reflecting paint applied. Ground radars have difficulties to interpret the right location of an F-16 on their screens, which can be dangerous for civilian aircraft. The AMA has a Radar Reflecting metal head mounted on the tube of the Sidewinder, and gives the right location of the F-16 during peace time. Normally it is always placed on Station 9, the right hand side wing tip station.

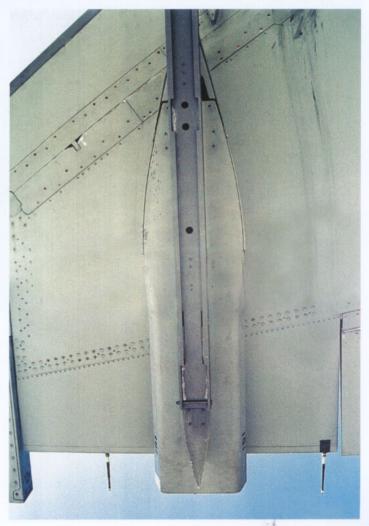






The container under the wing holds the FOTD (Fiber Optic Towed Decoy). It provides the aircraft protection against modern radar-guided missiles to supplement traditional radar jamming equipment. The device is towed at varying distances behind the aircraft while transmitting a signal like that of a threat radar. The missile will detect and lock onto the decoy rather than on the aircraft. This is achieved by making the decoy's radiated signal stronger than that of the aircraft. The distance the FOTD is towed behind the F-16 is classified.









Above: Aviano F-16s preparing for a mission over Kosovo. These Falcons have AIM-120 AMRAAMs on the outer pylon, carry Sidewinders and are ready to drop some smart bombs. The F-16 can carry GBU-10 2000lb bombs, GBU-12 500lb bombs or GBU-24 2000lb bombs. An ALQ-131 ECM pod is carried on the centerline.

Above: Same hardware on this F-16 leaving Aviano in full AB. Also notice the LANTIRN pod on the air intake.







Right and below: This F-16 carried a load of Mk.82 bombs 500lb bombs. For air defense, standard Sidewinder and AIM-120, and the additional ECM pod. The GBU-12 Paveway II laser guided bomb is based upon the Mk.82. The GBU-12 is equipped with range extending fins.

Above: A lot of mission markings already on Avianos 31 FW Flagship F-16 C. Notice also the crayon drawn nose art.











"We would like to make some photos of an F-16 with some hardware on it for our book..." we said. "If that is what you want, we'll just load one up!" and in came some Sidewinders, AMRAAMs and a GBU-10 2000lb smart bomb.













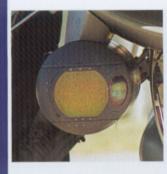




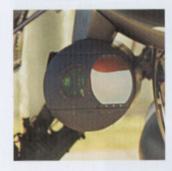


Loading and emptying the ammo drum feeding the M61 20mm Vulcan cannon is done at the starboard strake, right in front of the EPU exhaust.















This Aviano Big Mouth carries an AAQ-14 Targeting pod. This pod allows to find and attack targets in al kinds of weather. Its head constantly turns in search for its target. Notice that the scanner is turned inwards once the pod is deactivated.





















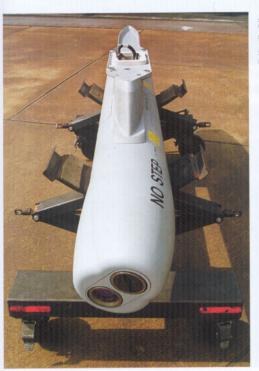
Opposite page: This Nellis-based F-16 is equipped with the LANTIRN navigation – attack system, with the AAQ-14 targeting pod on the right side and the AAQ-13 navigation pod on the left.

Both are Forward Looking Infra Red systems (FLIR).

The air intake at the rear of the pod (right for the Targeting pod and left for the navigation pod) provides air cooling for the electronics in the pod.

The Royal Netherlands Air Force has the intention to equip its F-16s with a unique system built by British Aerospace System to do the same thing as LANTIRN. It is a FLIR (Forward Looking Infra Red) Navigation Pod and uses a laser spot to trace the terrain below. The gathered data is show on a screen within the cockpit and on the HUD in full colour, even at night.













Some of the different ECM pods available for the F-16. The F-16s above are Aggressors based at Nellis AFB.

Below left: The pod on the centerline station is an ALQ-188 ECM pod. It's an older system and is nowadays only used by the Aggressors to simulate the ECM standards of the "Red Forces".





Above right: This pod is the AN/ASQ-213 HARM Targeting System pod carried on the starboard side. Below: Some details of the ALQ-131 ECM pod, nowadays the most common external carried ECM pod.







view-finder on either side of the canopy of the F-16s which are especially modified

for this role.



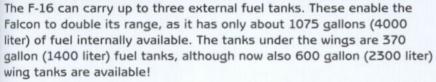








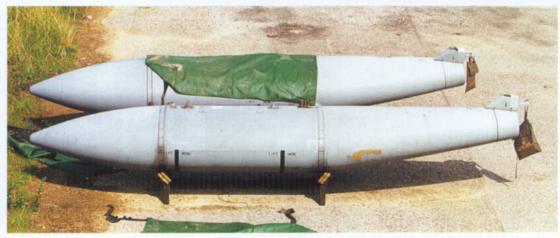






A closer looks at the 300 gallon (1150 liter) Centerline Fuel Tank.

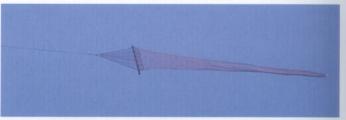
Note the shape of the fins of the wing tanks below, which is wrong represented in most model kits...











The SECAPEM Aerial Target system is used for life firing exercises. 500 Meter behind the towing ship follows the target flag, on which other F-16 pilots can practise their shooting skills. Other target systems are the Tacan and Tetra, which work by sonic registration of the passing bullets. It surely must be a comforting feeling knowing others are shooting at a target that is trailing your aircraft at not such a long distance....









Above and below: Travel pods are almost used on every overnight flight away from the home base to carry personal baggage, but in a previous life they carried something totally different: during the Vietnam war they were actual Napalm Pods, hence the visible refuelling point in front of the pylon. Some are personalised with very colourful schemes, others are filled with dents. Notice the new type of travel pod on the Danish F-16B in the photo below.









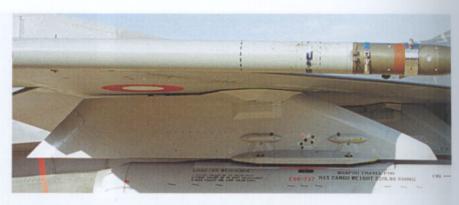


F-16s flying displays at various air shows around the globe often carry smoke generators. And it gives some cool photos as well...

















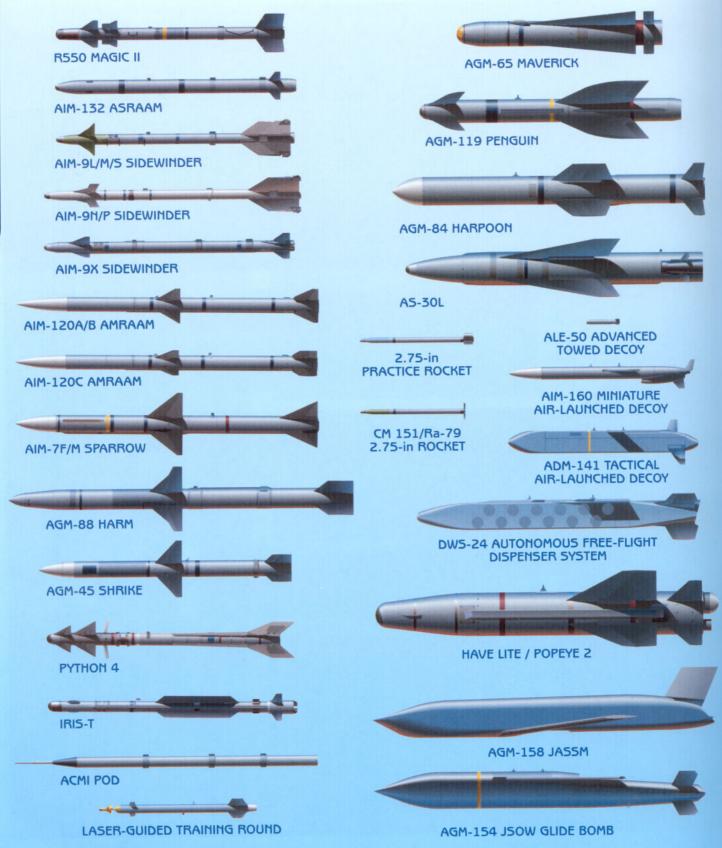




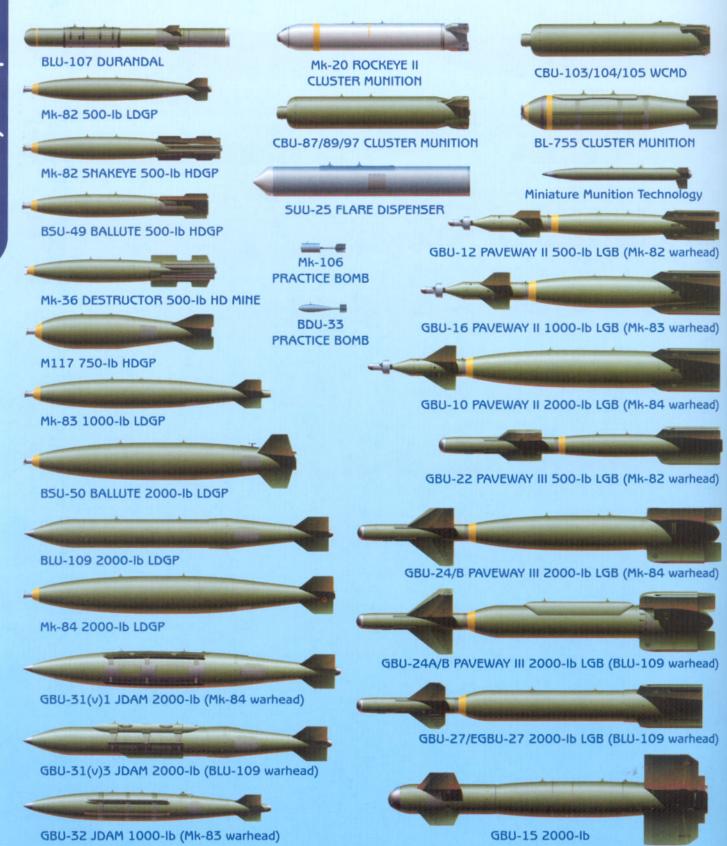


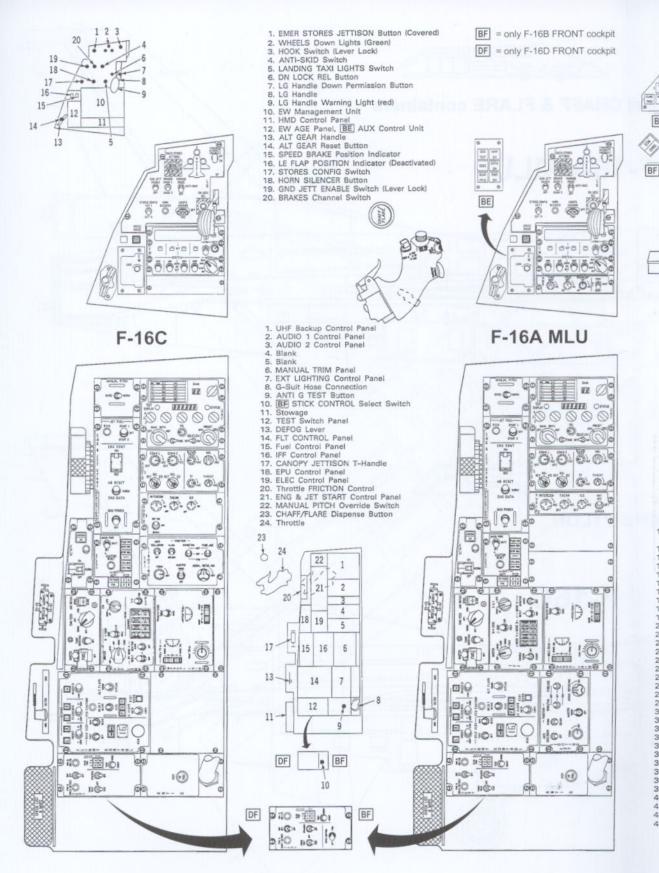












1. HUD Cor 2. AOA Ind

3. AR Statu

4. Integrate

5. Standby

6. FUEL FL

7. Data Ent

8. ENG FIRE

9. HYD/OIL 10. DUAL FO

12. Warning

13. Right MF

14. OIL Press

15. NOZ POS

16. RPM Indi

17. FTIT India

19. MRK BCN

20. FUEL QT 21. Rudder P

22. AOA Indi

23. INSTR M

24. Airspeed, 25. Attitude

26. Horizonta

27. Altimeter

28. Left MFD

29. Autopilot

30. Autopilot

31. Video Sv

32. MASTER

35. IFF IDEN

36. F-ACK Bi 37. EW Prime

38. Azimuth

ECM Light
 DRAG CH
 TF FAIL V

42. MASTER

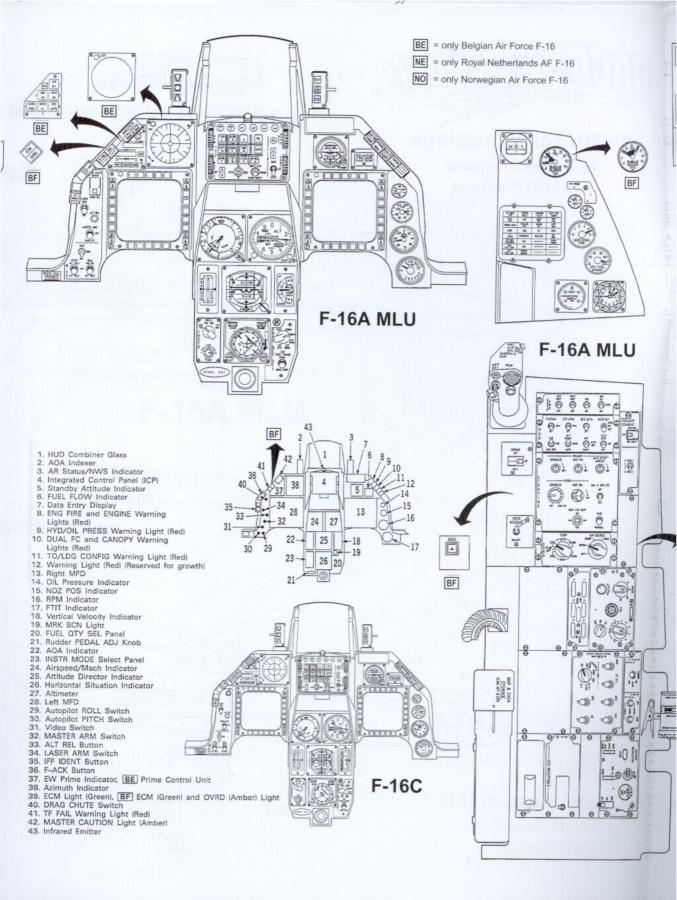
43. Infrared E

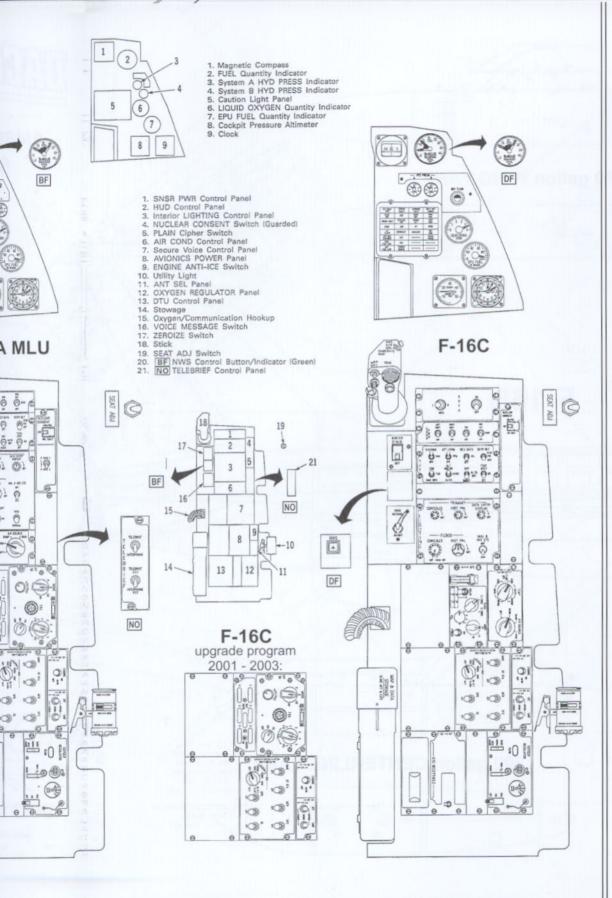
33. ALT REL 34. LASER A

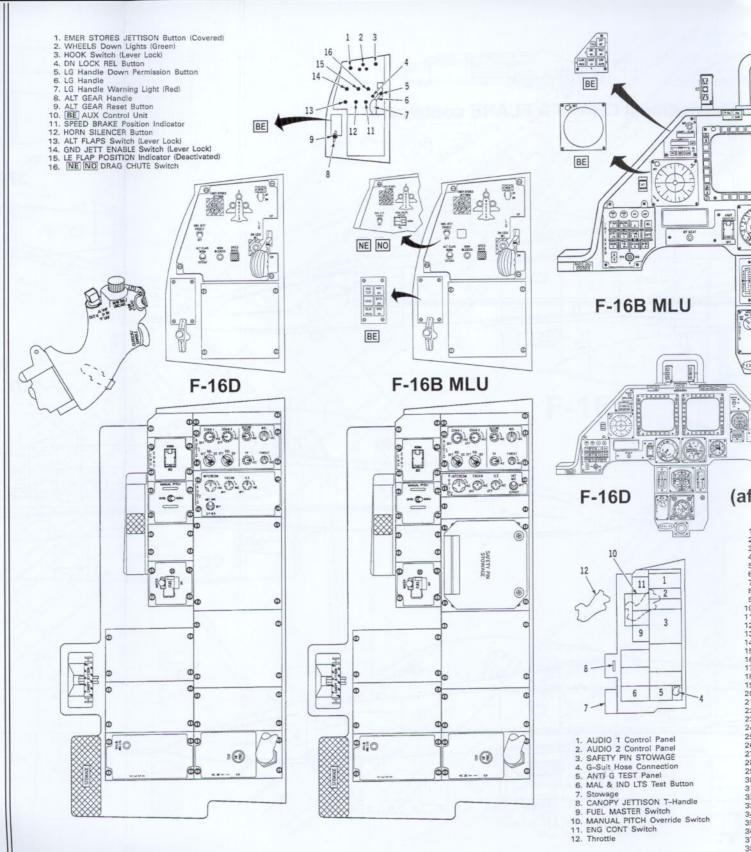
Lights (R

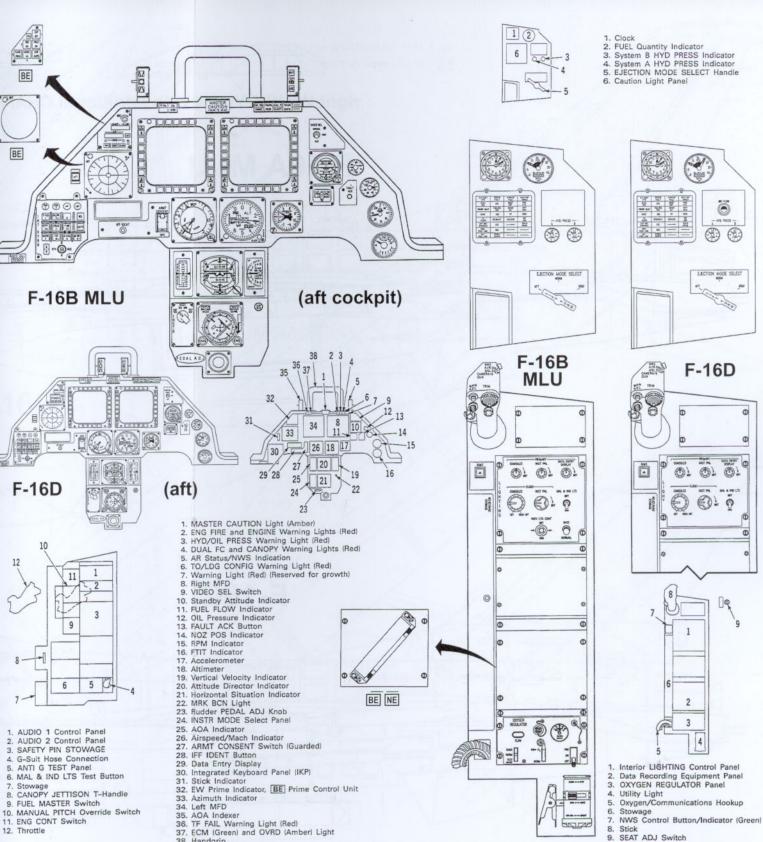
Lights (R

TO/LDG

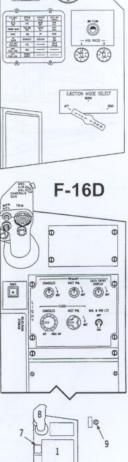




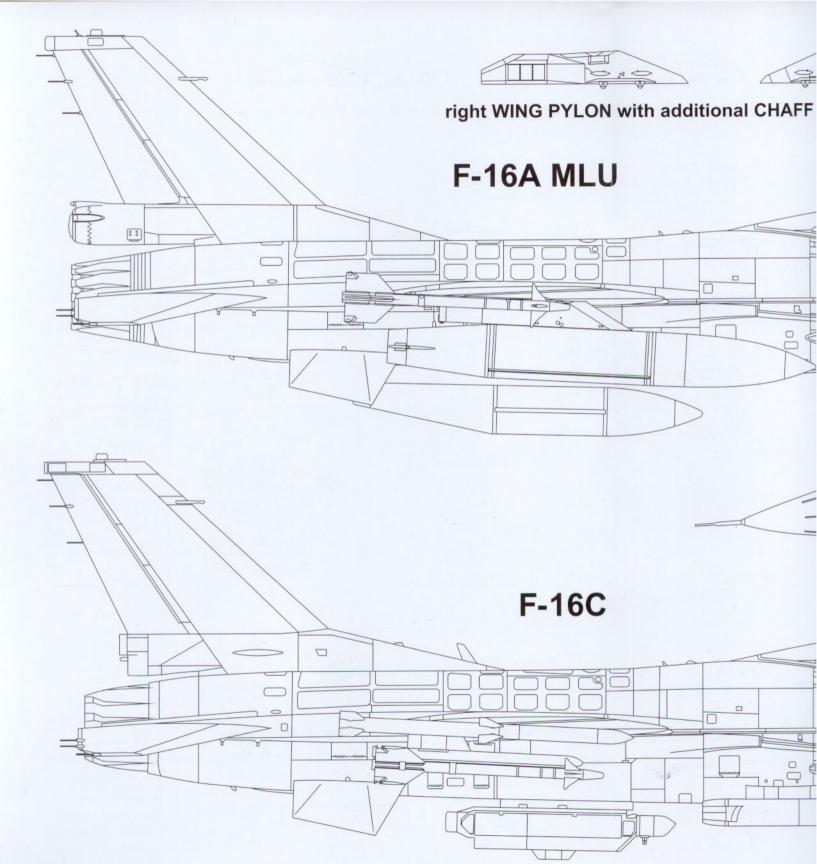


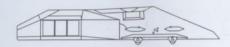


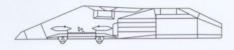
3. System B HYD PRESS Indicator



- 2. Data Recording Equipment Panel

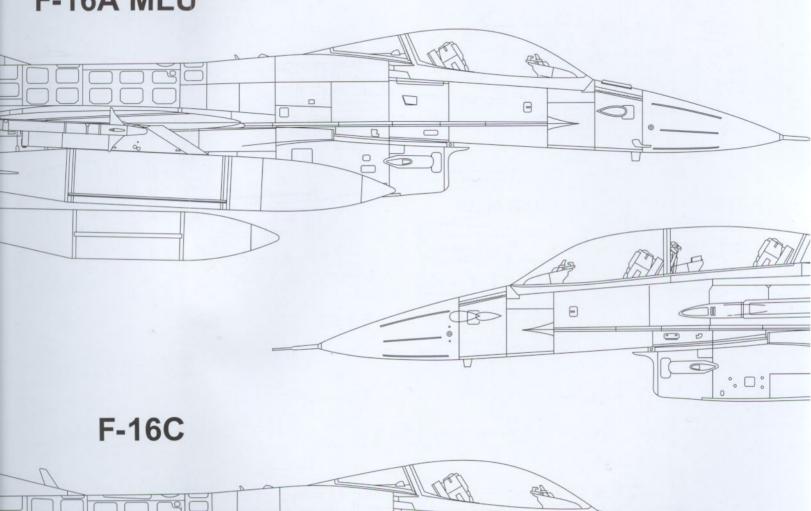


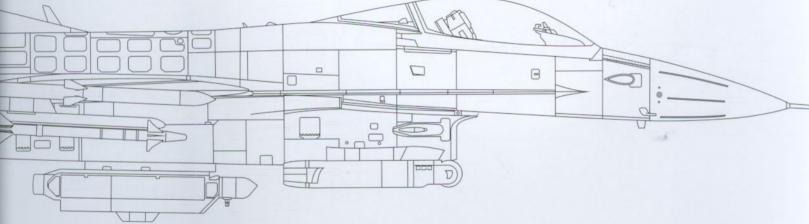


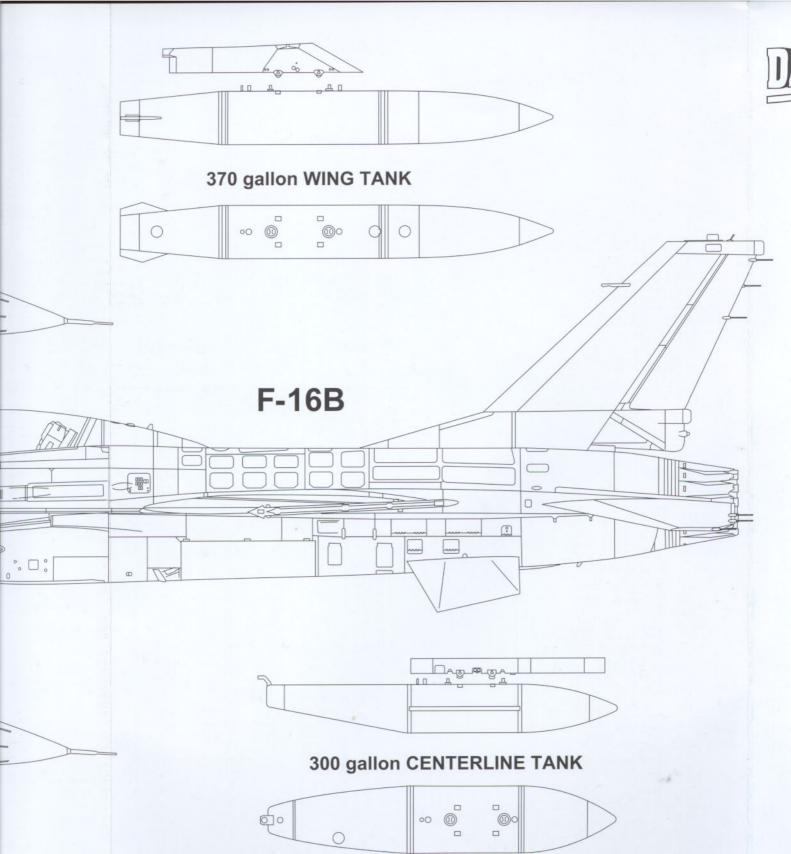


right WING PYLON with additional CHAFF & FLARE containers

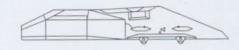
F-16A MLU













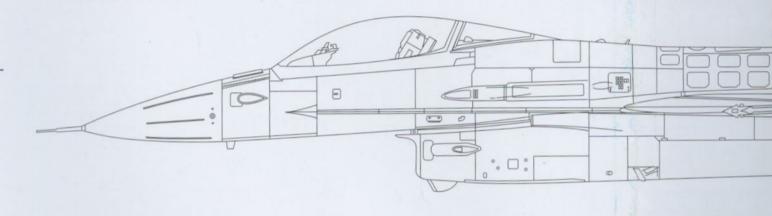
left WING PYLON with additional CHAFF & FLAF

1/48th scale drawings

by Danny Coremans

© DACO Products

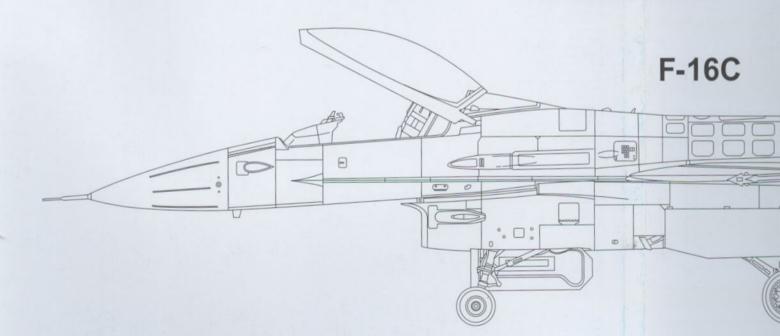
F-16A MLU

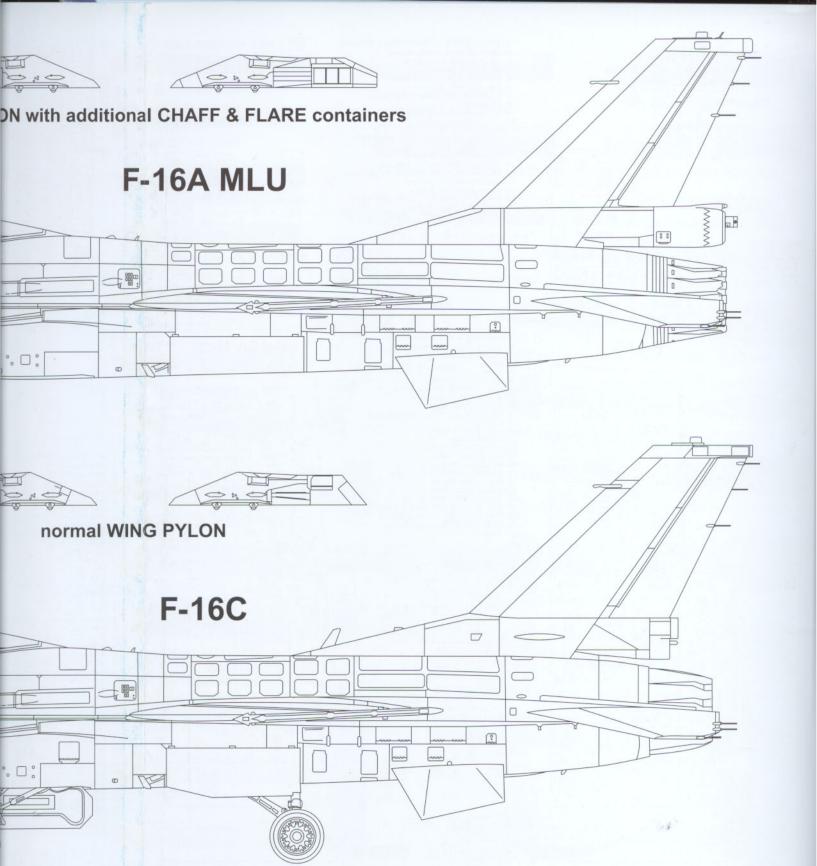


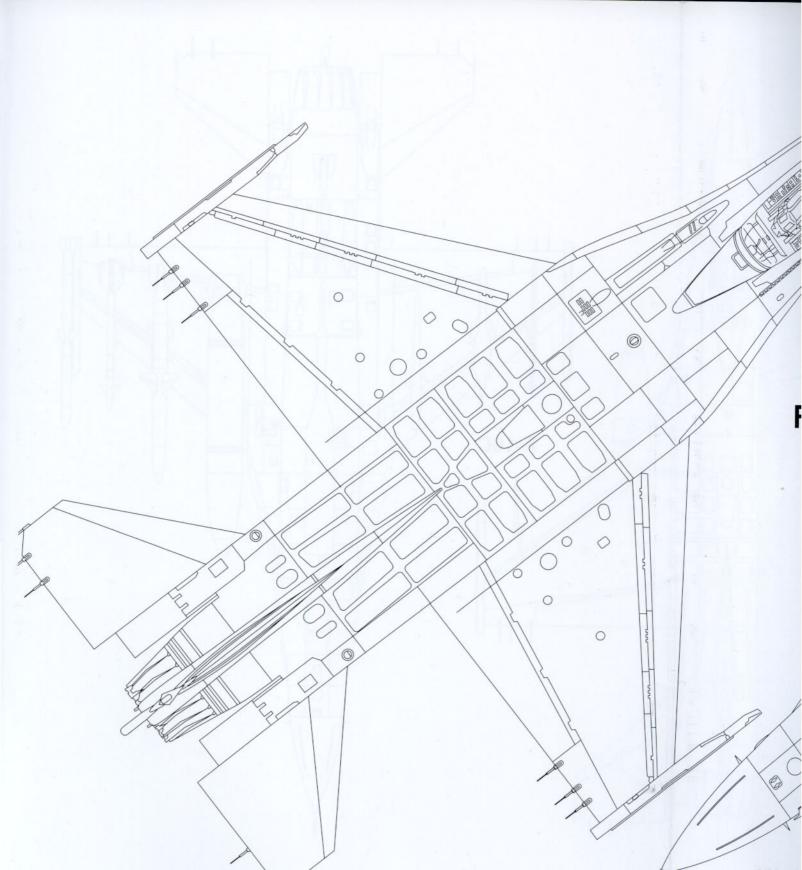


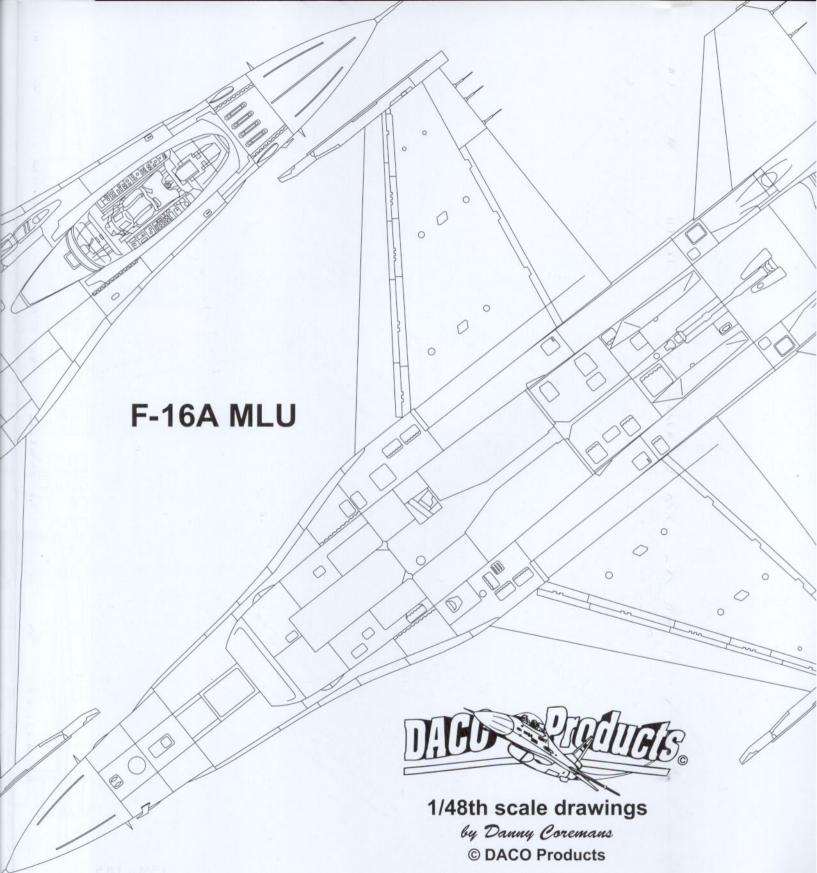


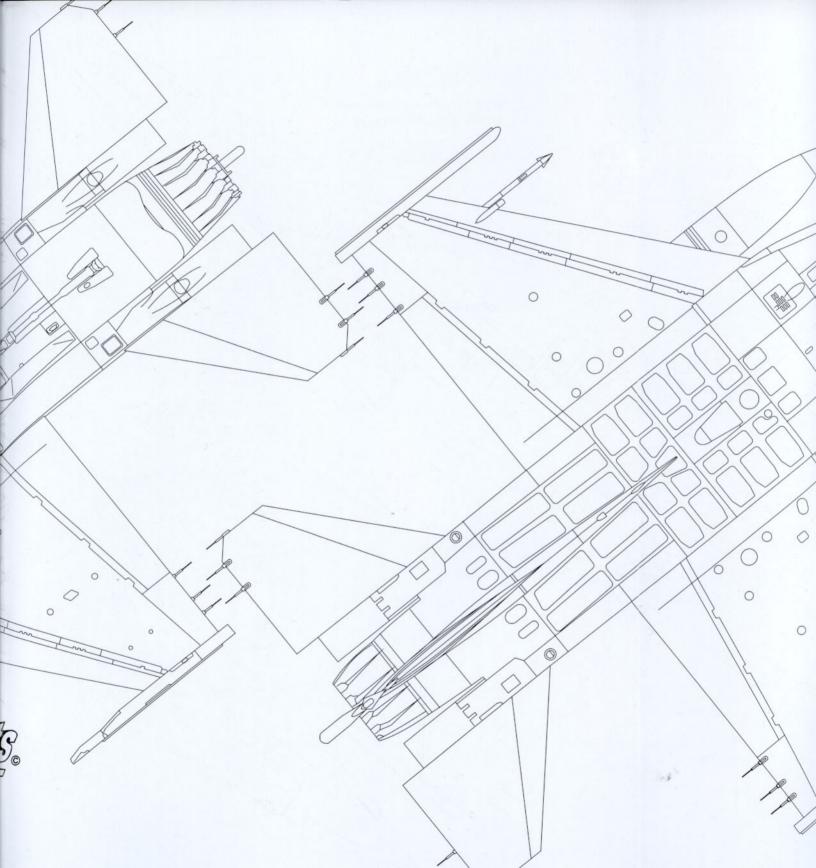
normal WING PYLON

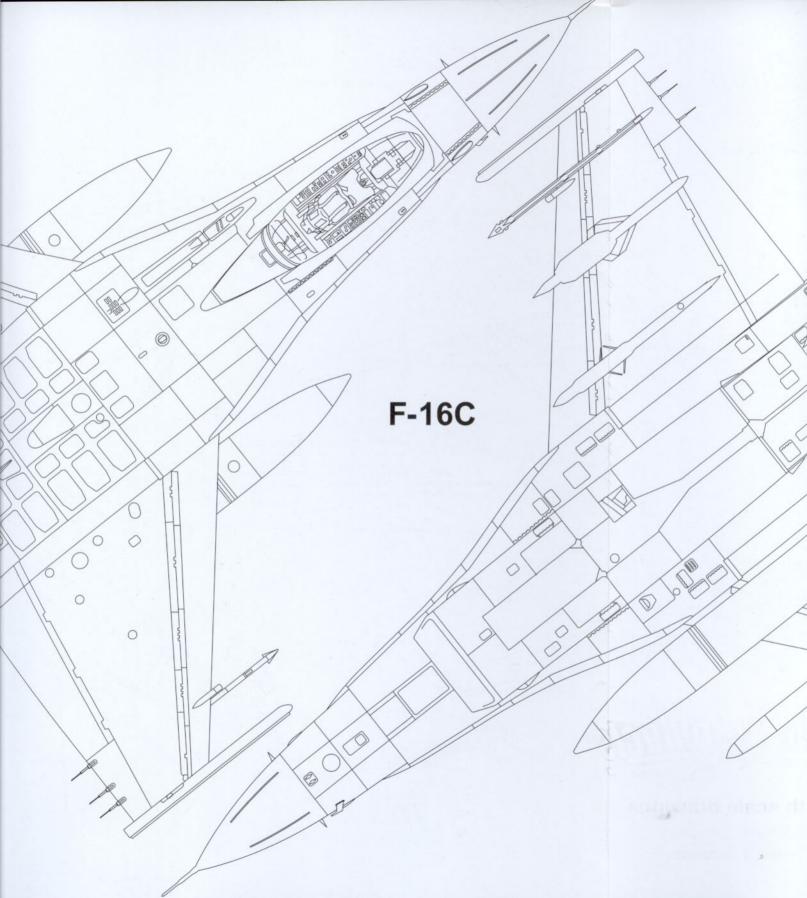


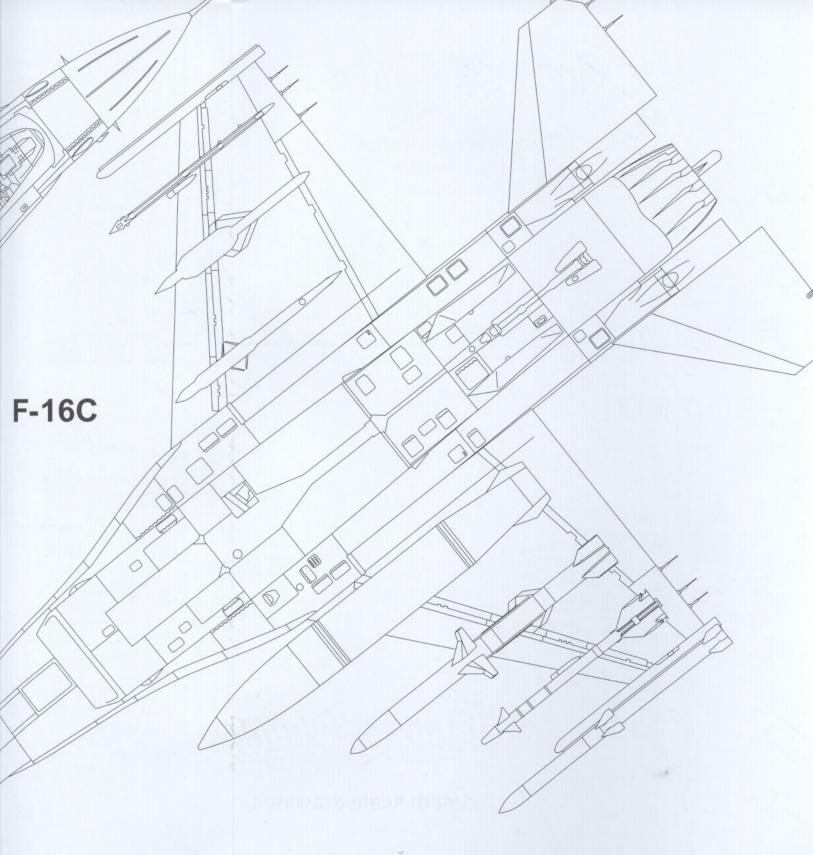


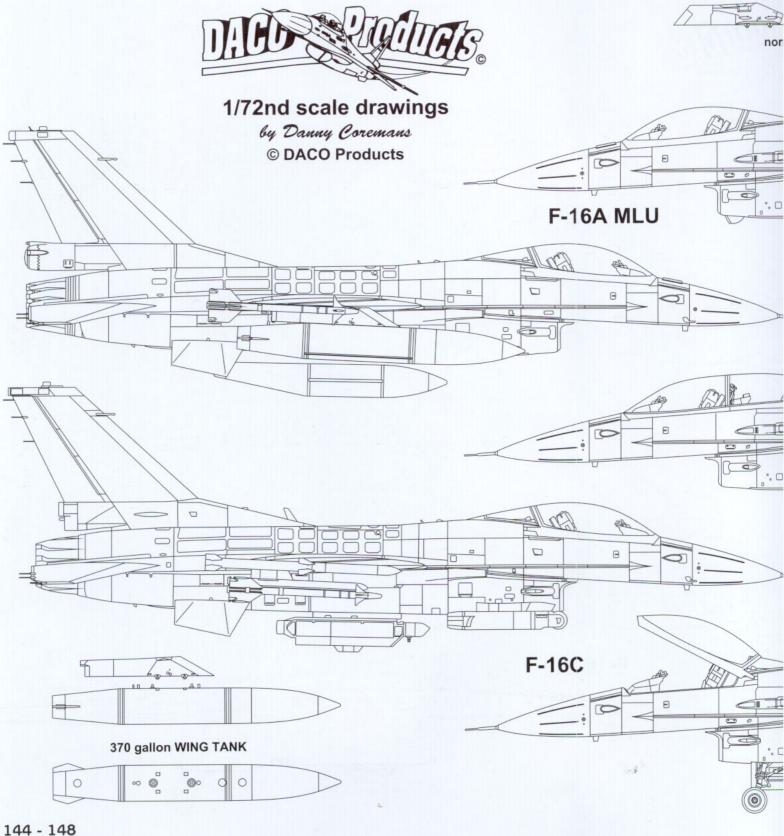


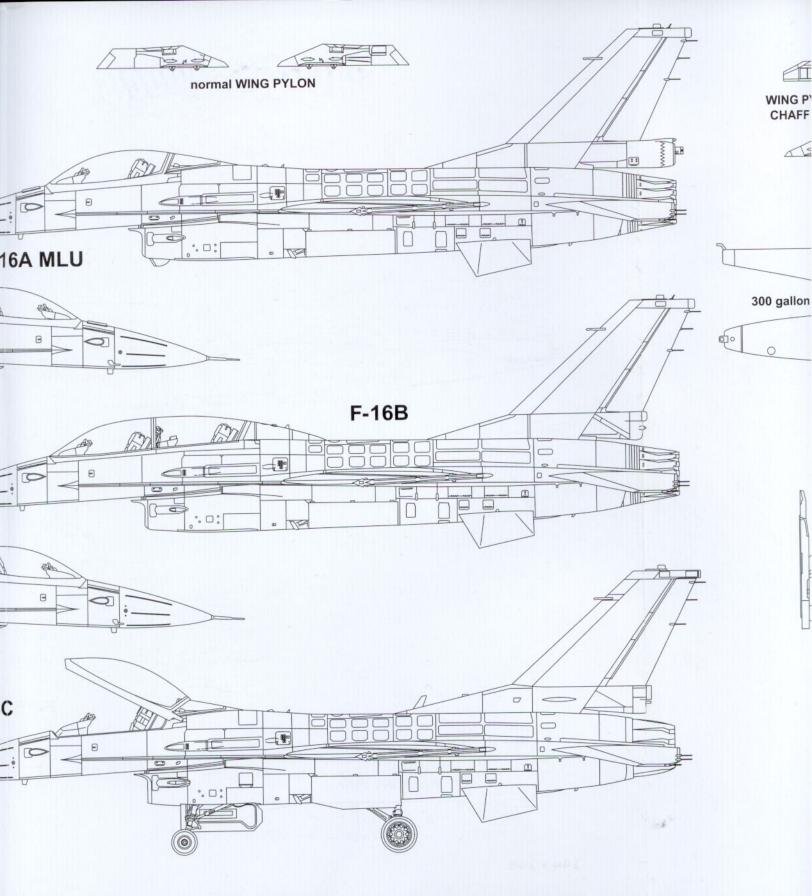


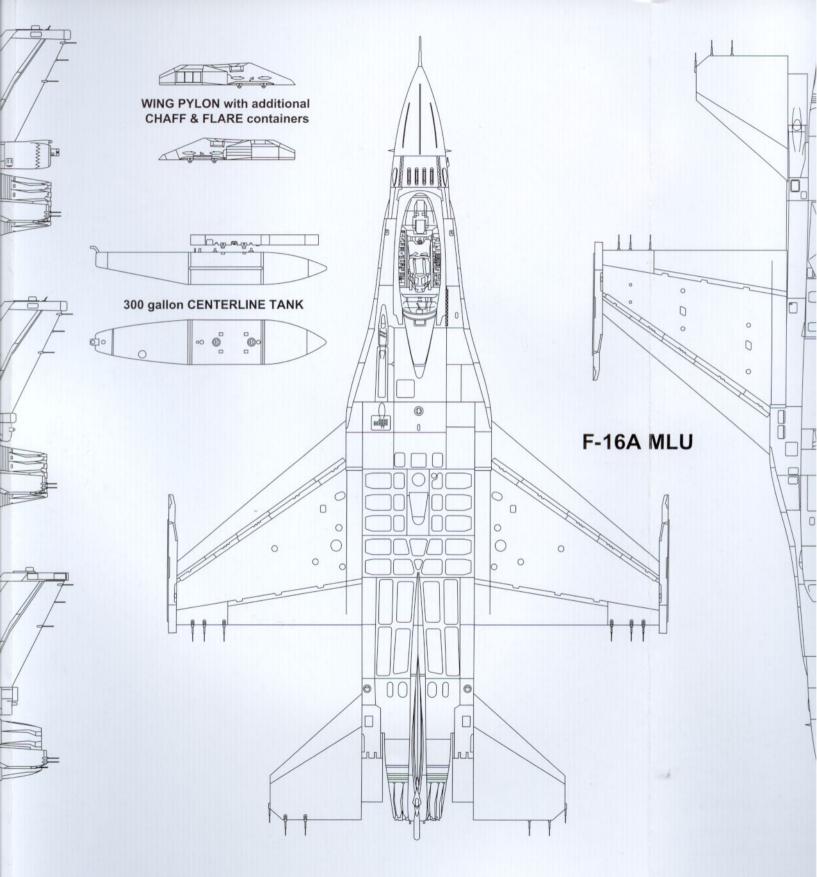


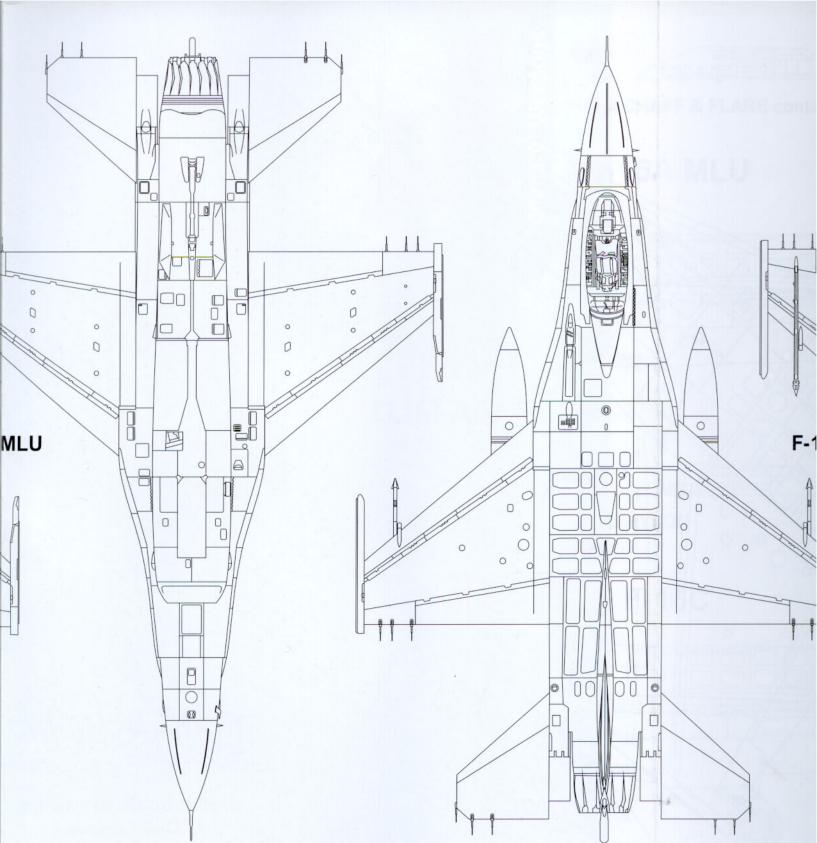


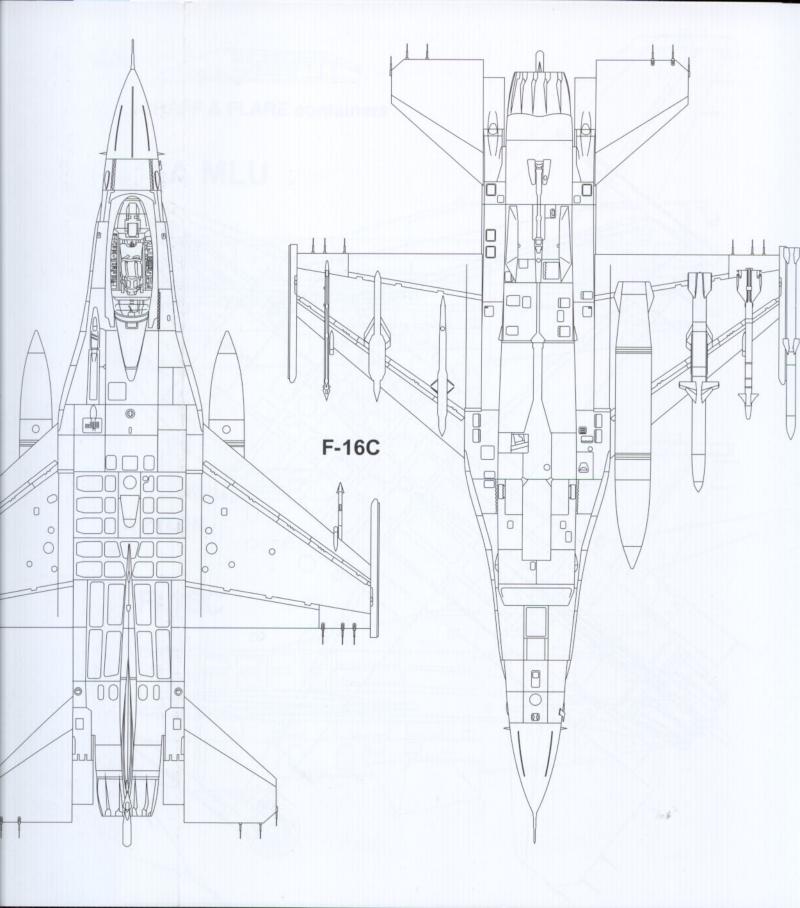


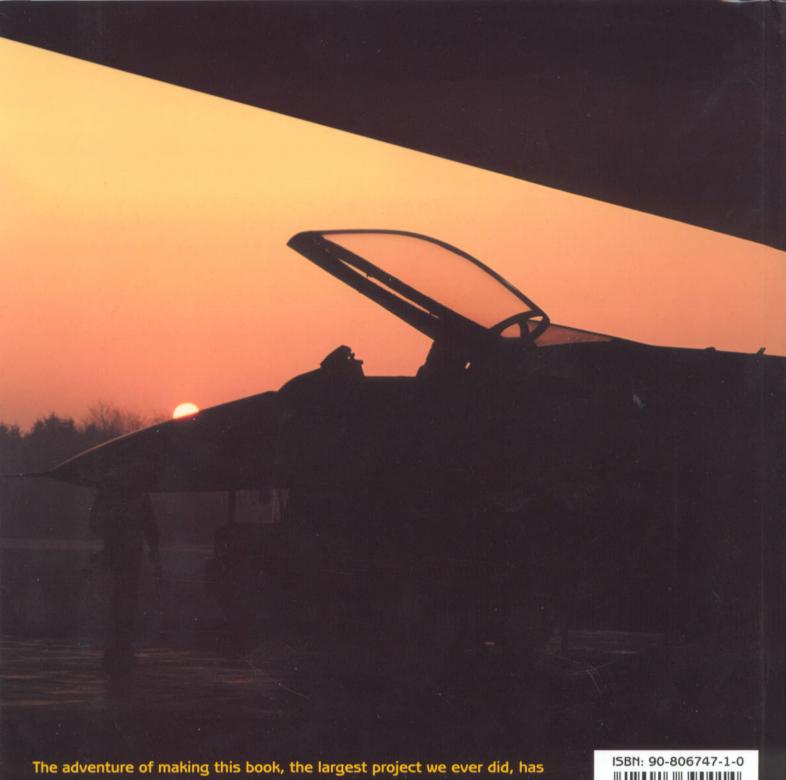












The adventure of making this book, the largest project we ever did, has taken 4 months of preparation, 3,5 weeks of lay-outing, 4 cameras, thousands of pictures & slides, 4 computers, 2 scanners, one laser printer, 8 colour cartridges, 59 litre of apple juice & 27 litre of ice tea for Danny and 41 litre of Coca-Cola for Nico, and several meals at Pita 'Cleopatra' in Antwerp. We hope you will enjoy this book...



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