541

LOCK ON N°9

AIRCRAFT PHOTO FILE

Willy Peeters

A7 D/K CORSAIR

VERLINDEN PUBLICATIONS

A-7D CORSAIR II
174th TFS, 185th TFG
IOWA ANG, SIOUX CITY

VERLINDEN PUBLICATIONS

Published in Belgium by
VERLINDEN PUBLICATIONS nv
Ondernemersstraat 4
KMO-Zone Mallekot
B-2500 LIER/ BELGIUM

Published and distributed in
the United States by
VLS CORPORATION
West Port Industrial Park
804 Fee Fee Road
Maryland Heights, Mo 63043
USA

Project Manager &
Chief Editor : François VERLINDEN
US Editor : Bob LETTERMAN
Text & research : Willy PEETERS
Layout : Willy PEETERS
Photosetting : SCANBO/ Beerzel Belgium
Printed by : Drukkerij DE PEUTER nv / Herentals Belgium

ISBN 90-70932-22-9

DEDICATION

To all men and women of the Air National Guard who are always prepared to answer the call of duty, even if it means leaving behind the family to preserve world peace in a far away land, halting old-fashioned world conquerors and making sure history, once again, doesn't repeat itself.

ACKNOWLEDGEMENTS

To all who made it possible to compile this book on a fascinating aircraft, I would like to express my sincere gratitude.
Especially to the following persons :

To Lt.Col.P.Janssens de Vaerebeke, VS1/IRP Belgian Air Force Staff, Chef Paternotte and Adj.C. Duchenne (his assistants) for coordinating my visit to Brustem air base.

To Col.Frederick W.Butler, USAF, US Air Attaché in Brussels for his cooperation.

To all the men and women of the 174th TFS, 185th TFG of the Sioux City based Air National Guard unit in general and to the following individuals in particular : Lt.Col Lillie/DCS PRO officer, Col.Dennis Swanstrom, Lt.Col.Les Jensen, MSgt.Ron Hahn, Ssgt.Jim Wych, Sgt.Susan Lehr and Amn.Brian Smith for their kind assistance during the photo-sessions.

To Antoine Roels, VS1/IRP, Belgian Air Force photographer for sharing some of his valuable inflight shots which make this book so much more attractive.

Last, but definitely not least I would like to thank Lt.Col. Wilfried Tersago of the BAF who proudly showed me around "his" base and who made the impossible possible. Thanks to him this book is what it is.

To those I forgot to mention, my sincere apologies, it was unintentional.

The author

All photos in this book were taken with the MINOLTA 7000i, loaded with Kodachrome K64 slides, except for the inflight shots. Lenses used are 35-105 zoom and 70-210 zoom. Most were taken with the aid of a flash, except for the overall views.

Centerspread: A-7D BuN°70-008 high above the clouds, overflying Belgian territory. The badge of the 174th TFS, illustrating a Sioux warrior, is proudly displayed on the left fuselage.
(Photo Antoine ROELS VS1/IRP).

Back cover: The same aircraft banking for Brustem air base after completing a successful photo-session tour.
(Photo Antoine ROELS VS1/IRP).

The A-7D Corsair. Although the FA-18 Hornet has replaced the A-7E as an attack fighter with active NAVY units, the Corsair's active duty life is not over yet. It's true, the Air Force no longer uses this sturdy looking aircraft, but many Air National Guard pilots still appreciate the capabilities of this 1965 design.

The Chance-Vought A-7A completed it's maiden flight on September 27, 1965, merely a year-and-a-half after the company was assigned the multi-million dollar contract.

The A-7's early life went smoothly, navy pilots had no problems converting to the new design which proved to be a sophisticated and reliable attack aircraft. Combat losses in Vietnam were few despite it's relative low speed.

This appealed so much to the Air Force, who already had the F-4 Phantom (another navy design) in use, that they decided to purchase the A-7 as well.

In order to "de-navalise" the A-7A, improvements were incorporated into the type resulting in the development of the A-7D. In return, the Navy was impressed with these improvements, most of which were used to update the A-7A, resulting in the final A-7E Navy type Corsair.

These improvements included larger main wheels, improved brakes with anti-skid system, replacement of the two Mk12 20mm cannons by a single M61 Vulcan gun and improved ECM equipment (active & passive).

The avionics of the A-7D were really sophisticated with the first HUD ever to be installed in any American combat aircraft. An advanced Navigation and Weapon Delivery System (NWDS) was installed which included a doppler radar system, air data computer, tactical computer and a projected moving map display.

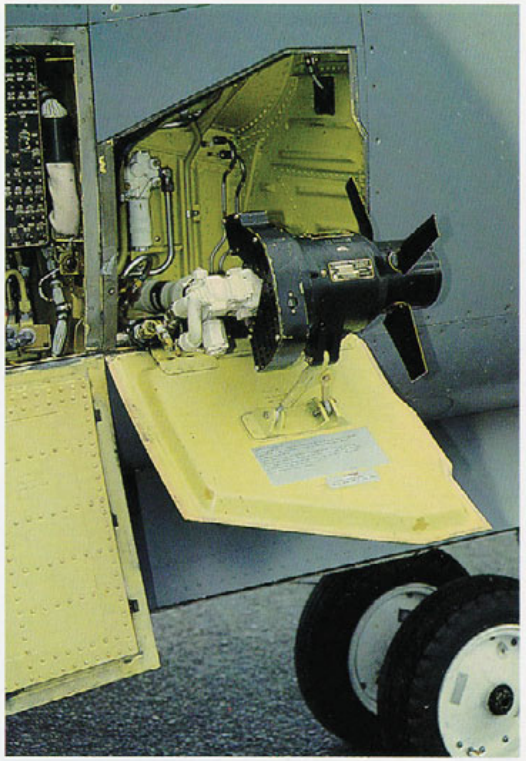
All this gave the A-7 a greatly improved weapons delivery accuracy. To some, it was the best attack aircraft in the Air Force.

However, one of the biggest changes implemented was the replacement of the Pratt & Whitney TF-30 engine with the much more powerful Allison TF-41-A-1 with increased rate of thrust (some 14,250 pounds).

The fact the A-7D is still flying today gives credit to the Chance-Vought engineers, who developed yet another successful fighter.

Moments before leaving for a cross-country flight over Belgian and German territory, an A-7D Corsair pilot is monitoring his flight instruments. The aircraft's crewchief, standing on the foldable side platforms, is holding firm on the canopy frame while supervising a ground crewmember in the process of removing all safetey pins.
A final check on the flight systems and circuit breakers in the avionics compartment at right is executed prior to giving the final go-ahead signal.
Several crewmembers are on "standby" in case they are called upon to perform additional check-ups. The markings slightly aft and below the cockpit denotes which Iowa High School is sponsoring this A-7 aircraft, a customary procedure with Air National Guard units.

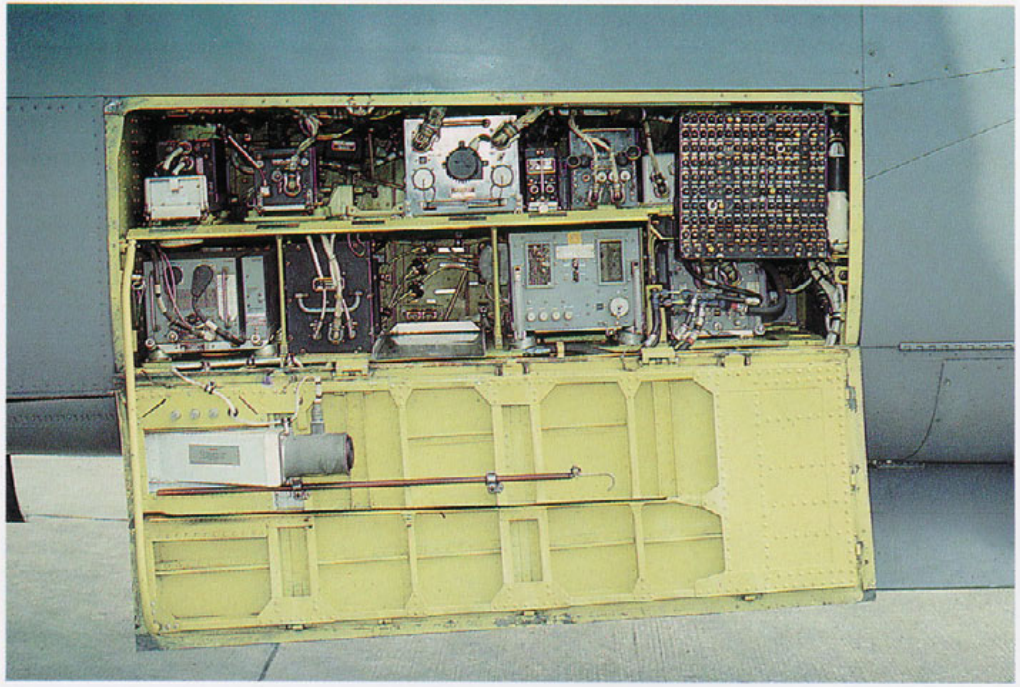
A-7D

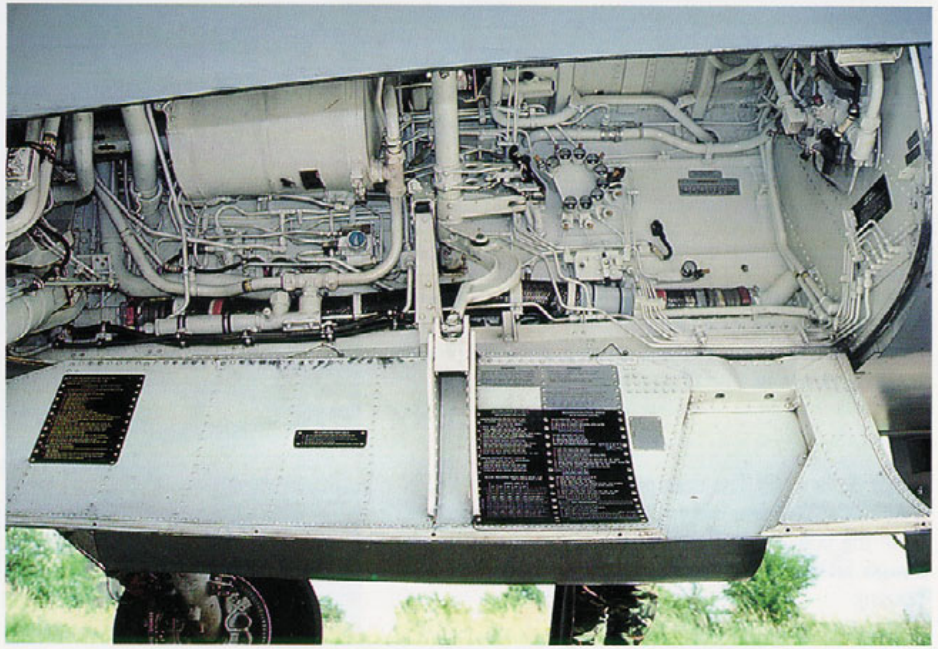


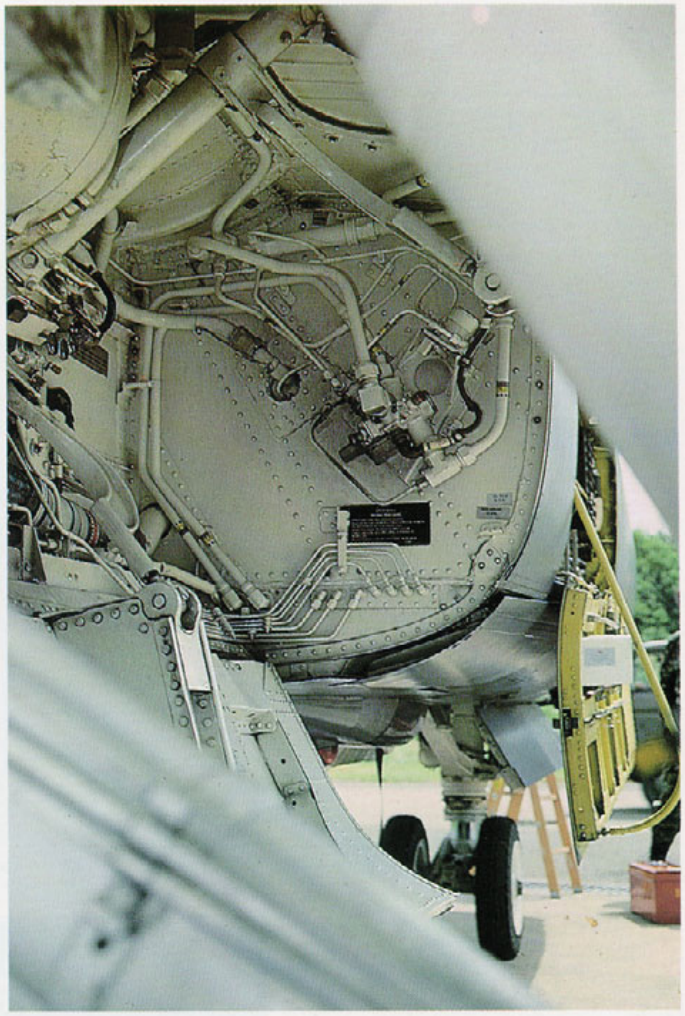
(Top) Environmental control piping and feed lines partly obscure the right side of the large air intake. Note the reinforcement ribs encircling the air intake tube. Also note the air conditioning exhaust just below the open bay.

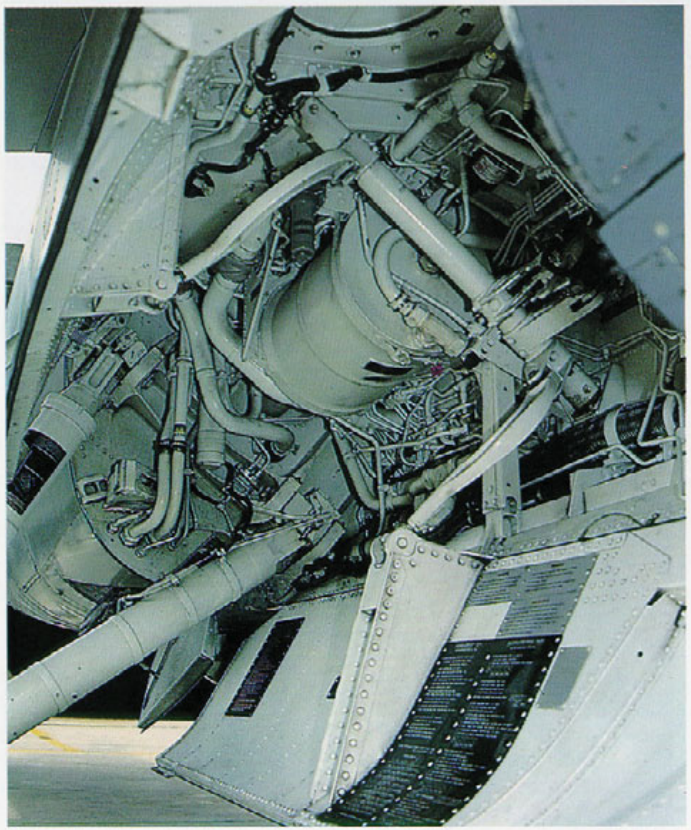
(Top, right & far right) The RAT or Ram Air Turbine houses inside a compartment aft of the bay seen above and just in front of the upcoming avionics bay. This compartment can be opened by the pilot and when in flight will provide auxiliary power in case of engine failure.

(Right & far right) The nose gear well and the AN/APN-190(V) doppler radar housing just aft of the nose gear well. Note the position of the nose gear doors, the static discharger line and the anti-collision light on the doppler radar housing.
The narrow nose wheels are apparent.



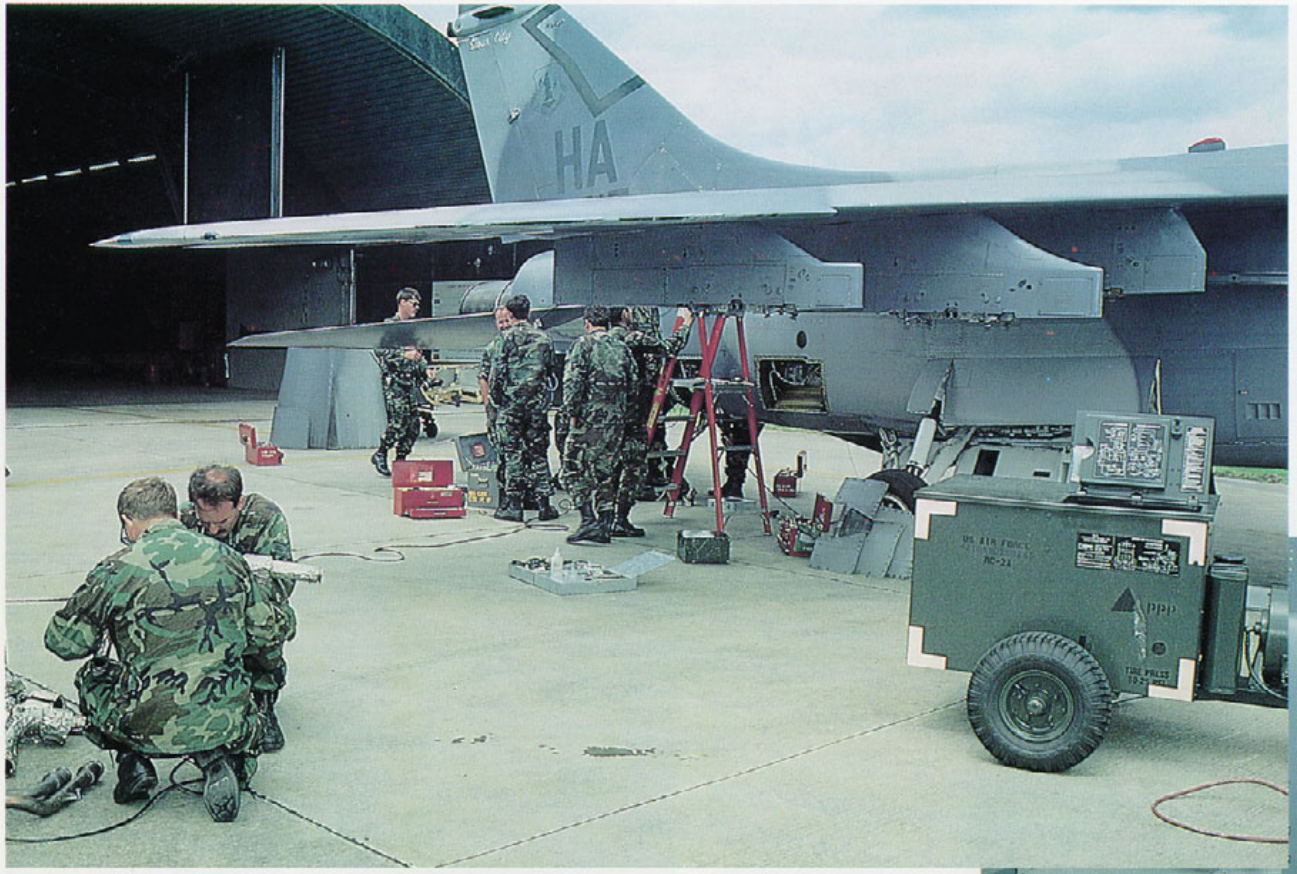






(Previous page, top row) The right side avionics bay. Various control boxes are neatly stowed inside the bay. Note the circuit breaker panel on the right.
The aft strut brace has it's own housing and a separate retracting door.
(Previous page, bottom row) The inside of the main wheel with the brake disc assembly clearly visible. Note the red bracket securing the main wheel strut. When this is not removed, the main wheel will not retract.
A side view into the main wheel well. Note the hydraulic reservoir and the various instruction placards, typical for the A-7.

(This page, top left) The aft fuselage area showing the various panels and the underside of the wing flaps. The hole at the bottom fuselage below the national insignia is the engine starter exhaust.
(This page, top right) The forward wheel well bulkhead. Of interest in this picture is the partially opened airbrakes which can only be fully opened when in flight.
(Left) The same well looking to the aft bulkhead.


HA

Two pages illustrating that members of the Air National Guard are equally qualified to maintain high-tech jet aircraft as well as their air force colleagues.
This A-7 returned from an afternoon sortie with some minor engine problems. Minutes after engine shut off the place was swarming with mechanics dismantling half of the A-7's airframe.
The aft fuselage ring (seen aft of the aircraft in the top picture, previous page) was removed followed by the lower fuselage segment which was covering the complete underside of the engine. This enabled access to the most vital organs of the Allison TF-41-A-1 engine which is able to provide 14,250 pounds of thrust. The A-7 engine has no afterburner.
Diorama builders will love these views on aircraft, men and the tools of the trade.
Note the Air National Guard hauled their own service carts across the Atlantic rather than relying on service carts not suited to the type of aircraft they are flying.

(Previous page, top) The belly of the A-7D with the arresting hook(used for emergency landings) in the stowed position. The bottom left picture reveals the hook's position when engaged to catch the wire. The clean appearance indicates it hardly served it's purpose on this machine.
(Previous page, bottom right) The aft lower part of the fuselage holding the chaff and flare dispenser boxes has completely been removed to facilitate maintenance although it can be hinged as indicated by the hinges on the upper framing.

Aircraft 69-215 in all it's splendor with the outer wings folded. Although intentionally developed for it's navy counterpart, all air force A-7's retained the ability to stow some 15 feet (±5 meters) of wingspan.
Fully extended, the A-7's wingspan is 38,73 ft (11m80), but fully up and stowed , wingspan is reduced to 23,77ft (7m24).
The "SLUF" is not a small aircraft judging from the size of the mechanic in the front.

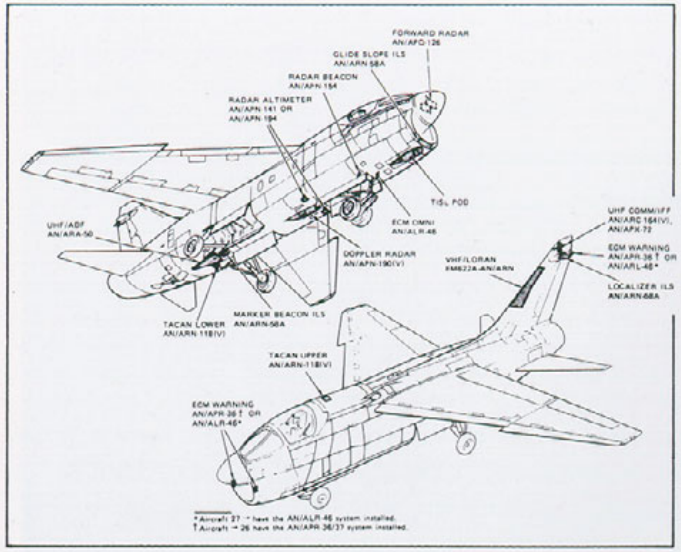


Photo Antoine ROELS /VS1 IRP Belgian Air Force

(Above) The A-7D viewed from below giving a good impression of the location of the various antennas under the fuselage.
The triangular device in the center of the bottom fuselage is the AN/ARN-58A Marker Beacon ILS. The small square in front of it is the lower AN/ARN-118(V) TACAN antenna. Note the "wrap-around" camouflage scheme and the small fuselage floodlights under the wings (not found on navy A-7's).
(Left) Detailed shot of the wing folding mechanism.

(Far left) The tail section from the left. Note the leading edge flaps are in the down position. Also note the little "zap" marking (representing a bat) inside the forward AN/ARC-186(V) VHF antenna marking.

Antenna locations on the tail are UHF COMM/IFF antenna within the black fin cap, localizer ILS antennas extending from both sides of the RHAW radar homing and warning antenna fairing.
Tail position lights are also mounted inside this fairing just in front of the RHAW antenna.

(Left) A small inspection panel is located below the "low-vis" national insignia.

(Bottom) An overall side view of the A-7's port side looking towards the nose section. Note the fuel vent aft of the landing gear housing and the static discharger line at right.

Part of the fuselage sidewinder launching rail and the bottom of the inboard (station 3) and center (station 2) wing pylon.

The center and outer wing pylon viewed from the same spot. Note the "dog tooth" in the wing leading edge.

Safety pins are stowed in the front housing of the pylons as demonstrated by this ANG crewmember.

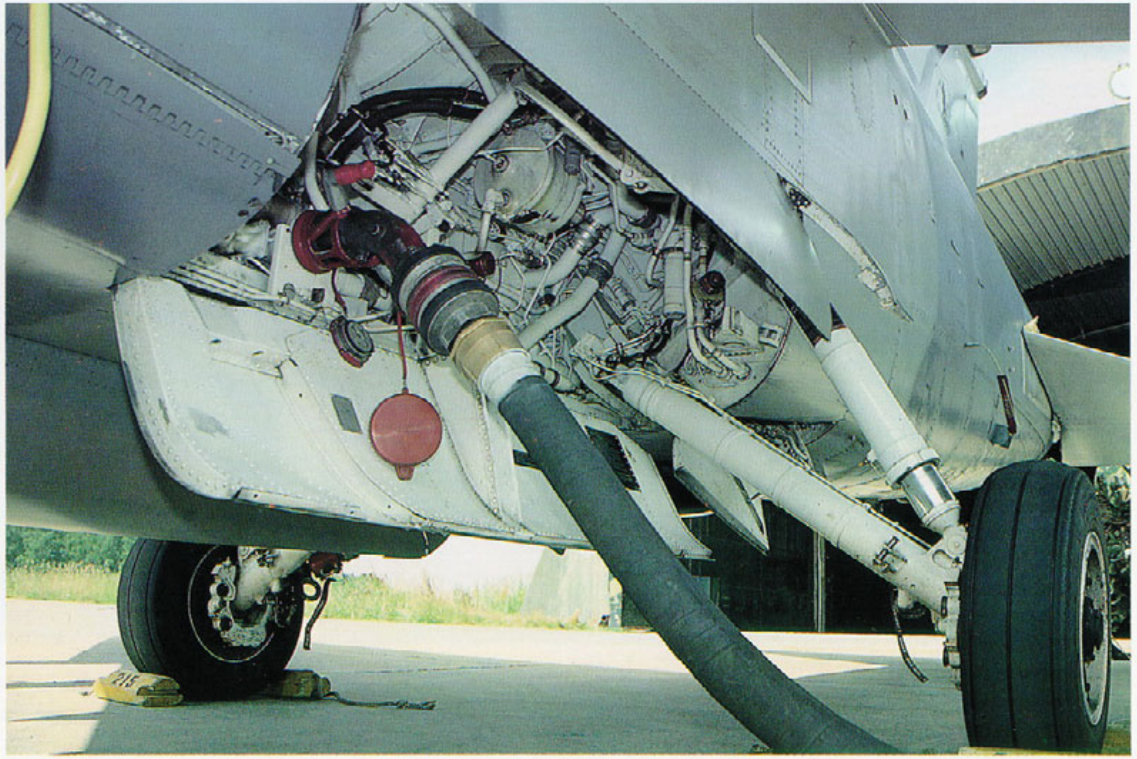
Surface detail of the center wing pylon with the main gear downlock stowage housing in the pylon leading edge. The downlock device is shown on page 6, bottom left picture.

Panel detail of the most outboard wing pylon. Note the different shapes of the pylon's leading edges.
Nevertheless, they all feature the same attachment racks.

Aircraft 69-210 of the Sioux City ANG unit in front of a Belgian Air Force shelter. While on tour to the BAF Brustem air base, the A-7's were entitled to use these "hardened hangars".
This particular aircraft is spotted with a three hundred gallon external fuel tank attached to the inboard pylon.
Note the nose gear directing handle and the towing winch cable protruding from the shelter which is used to pull the A-7 into it's hiding.

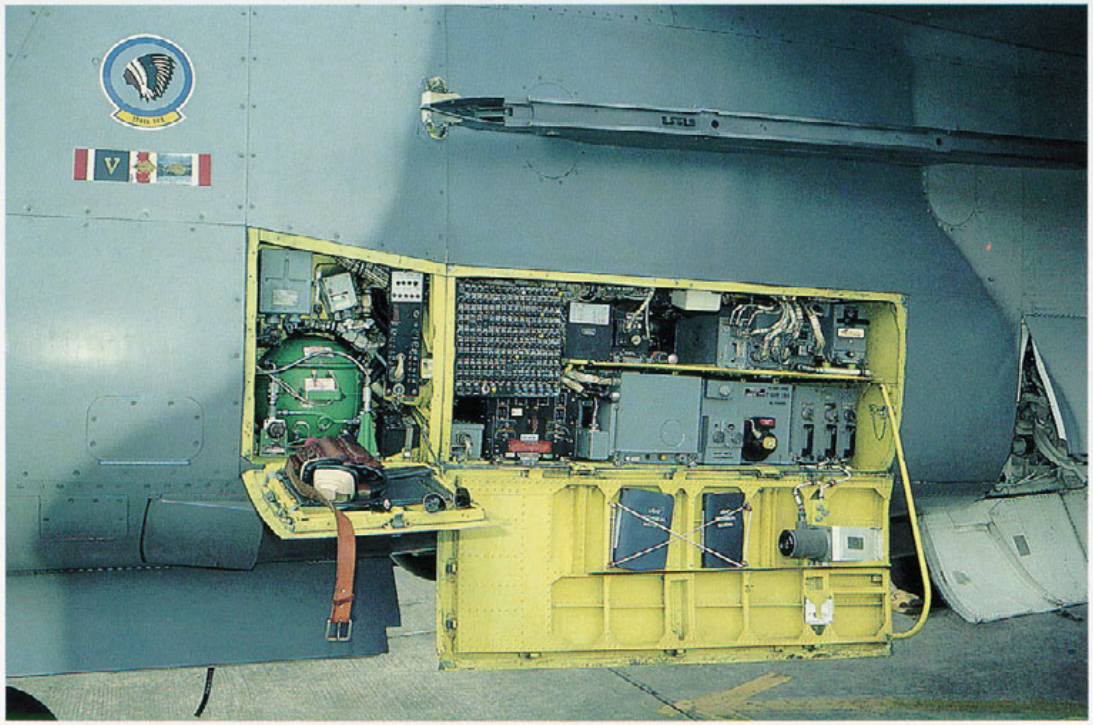
The 300 gallon fuel tank features only three stabilizing fins, lacking one on top. Note the reinforcement/hinge at the lower part of the tank.

Obscured when viewed from aside, the inboard pylon itself has some detail worth showing. Note the A-7 pylons are firmly attached to the lower wing surface, leaving no gaps at all.



The port main wheel well detail differs from the opposite side. The reservoir situated on the well roof is much smaller and pipe lines run in different directions.
The single point ground refueling receptacle is located inside the port wheel well. Refeuling is in progress.
The A-7 can hold as much as 1,425 gallons (9,262 pounds) of JP-4 fuel internally and can carry as much as four externally mounted fuel tanks (1,207 gallons) totalling 2,632 gallons of "juice".

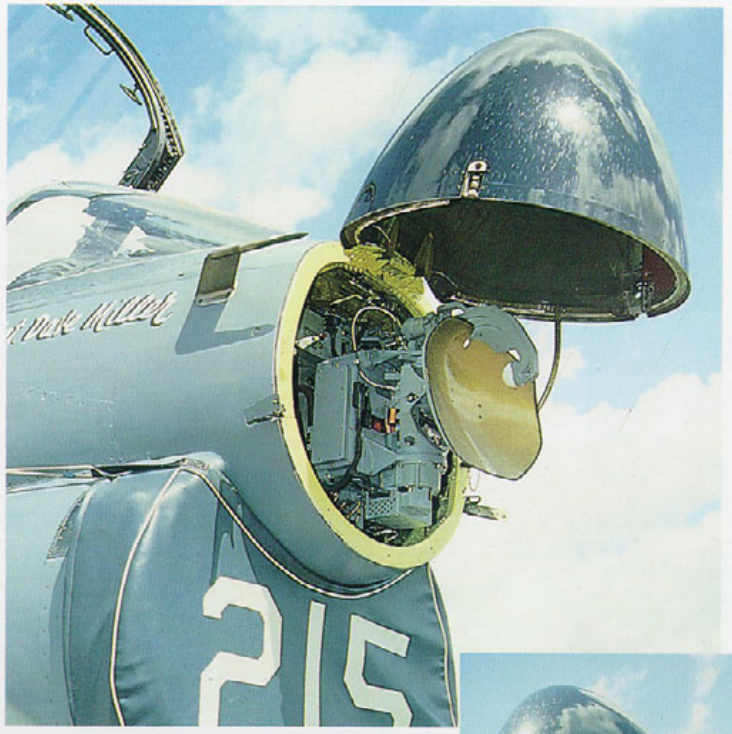
(Right) The crewchief is installing safety pins to the ejection seat, demonstrating the ability to board the A-7 without the need of an auxiliary ladder or step.
(Bottom left) The avionics bay on the port side which differs slightly from the opposite bay. Note the color of the bay interior and the avionics boxes. Also note the technical manuals attached to the bay door. Just in front of this bay is located the LOX or Liquid Oxygen Bottle which provides the pilot breathing air for his oxygen mask. Without it he would be forced to fly "low and slow".
Note the 174th TFS badge at left.
(Bottom, right) The M61 Vulcan gun muzzle on the left side, immediately below the step housing. Note the landing and taxi lights mounted on the nose gear.




Col Dennis Swanstrom

A-7D CORSAIR II
174th TFS, 185th TFG
IOWA ANG, SIOUX CITY

VERLINDEN PUBLICATIONS



The similarity between the A-7 and a shark is emphasized by this quarter head-on view.

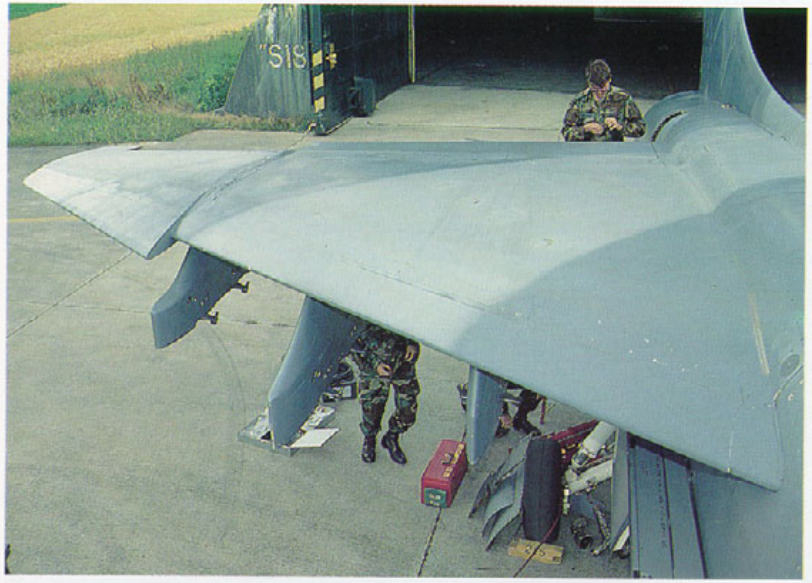
Dual pitot tubes are located on each side of the radome. Antenna locations on the intake lips of the A-7 are two ECM antennas (at about 3 o'clock and 10 o'clock position) and the forward AN/ARN-58A glide-slope antenna (6 o'clock position).

(Top right & far right) The A-7D is equipped with an AN/APQ-126 (V) forward radar underneath the glossy black radome which is hinged on top. The bulb underneath the A-7's chin is the TISL pod or Laser Illuminated Target Detector. Although installed on all A-7D's and A-7K's, few carry the actual equipment. If carried and in use the front cover would be of glass and the equipment would show.

(Right) When ground testing of the engine is required, the FOD screen is attached to the intake. It prevents things like light equipment and even people from being sucked into the large gaping mouth of the SLUF.

The names on the nose below the windscreen do not necessarily mean these persons are flying the aircraft. Alternate sorties are flown with available aircraft. This A-7D is scorching in the afternoon sunlight awaiting another pilot to take it into the wild blue yonder.
Parked A-7's almost always have the avionics bays open.

(Left) Lt.Col. Les JENSEN is seen unbuckling his parachute harness. He just returned from a successful familiarization flight over foreign countryside. His parachute harness differs slightly from the ones used by F-16 pilots in that it has a padded lower back.
The crewchief is holding the aircraft's logbook which is signed by the pilot before entering the cockpit, ensuring him of the servicability of the aircraft, and by the crewchief as soon as he takes over the aircraft from the pilot after he has landed.

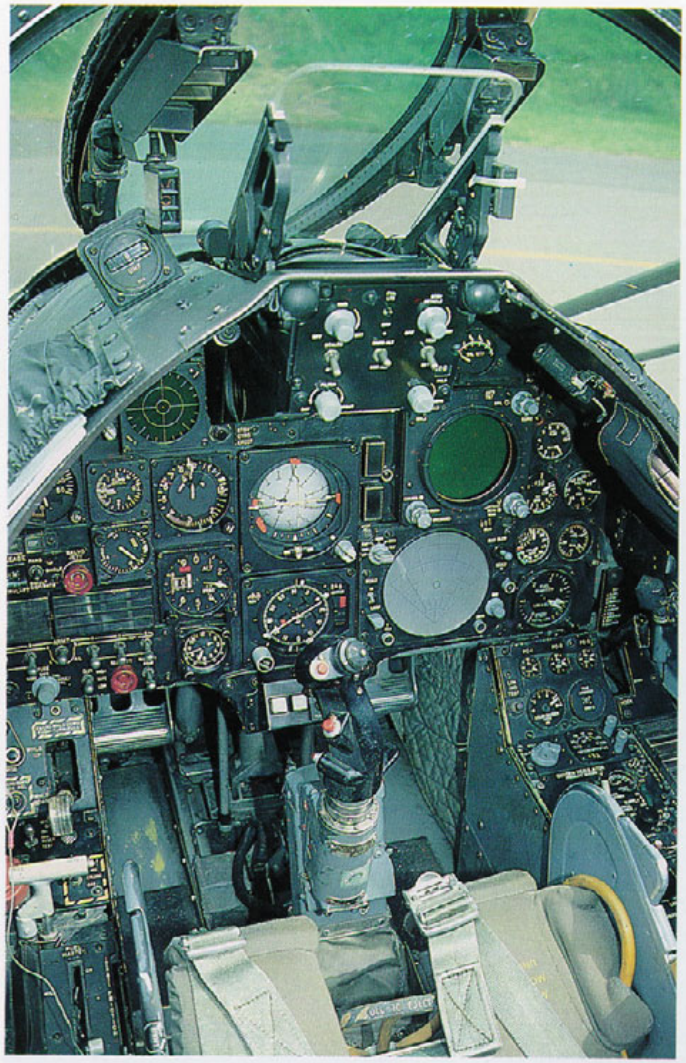


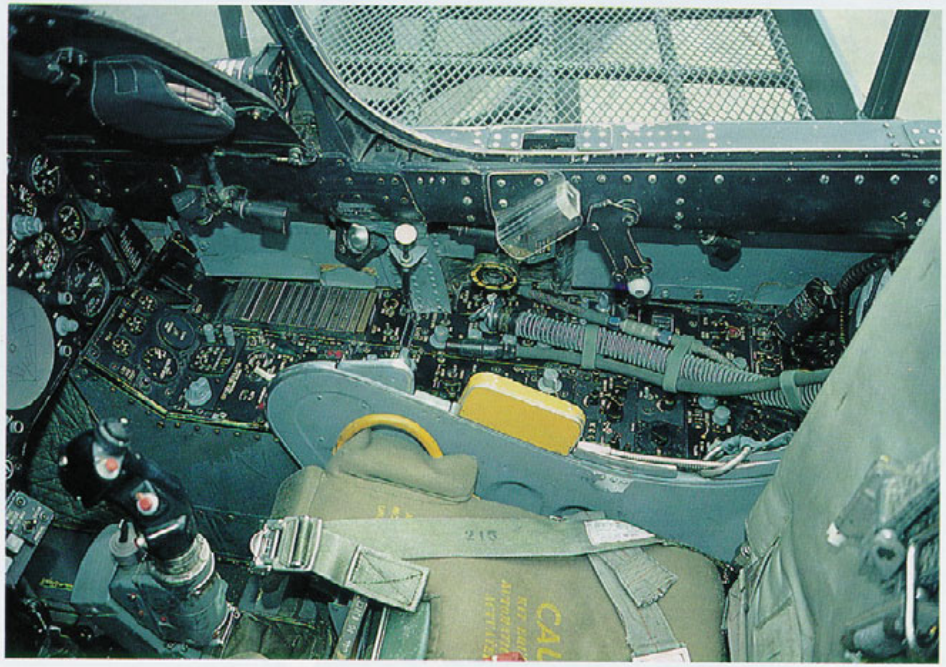
The upper surfaces of the starboard wing show little detail. The camouflage pattern can however be distinguished. Note the perfect integration of the leading edge slat in the wing.

The upper fuselage with the upper TACAN antenna (far right), the inflight refueling receptacle (air force A-7 location, replacing the navy's side-mounted nose probe), and the upper anticollision light. The white light just in front of the latter is a formation light.

An A-7D (72-190) seen taxiing towards it's shelter after an uneventful cross-country flight. An interesting photo because it shows the landing flaps and the leading edge slats in the down position, as well as the other side of the inflight refueling receptacle.
Note the through-the-wing spoiler just in front of the lowered flap.

The pilot's play-room. The A-7D cockpit differs distinctively from the A-7E cockpit. Basic layout is according to early jet-age standards with flight instruments in the center, engine monitoring instruments on the far right and weapon selector panels on the far left immediately above the landing gear control lever.
The A-7 features and advanced HUD or Head Up Display enabling the pilot to check the most relevant flight data without having to glance at the cockpit mounted flight instruments.
Note the way the control stick is mounted to the cockpit floor.
The concave box mounted below the left instrument cover houses the RHAW (Radar Homing and Warning) indicator lights.





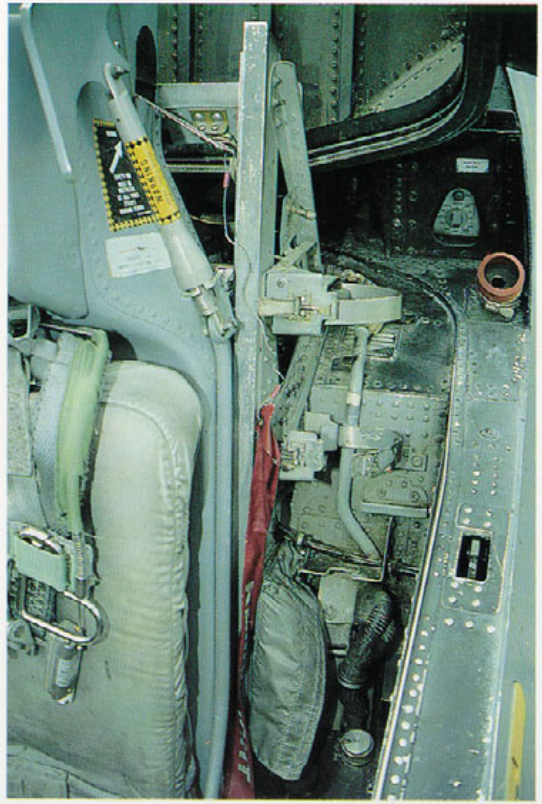
(Top) The main instrument panel viewed from the left with a good view on the engine instruments at the far right. Note the two pouches mounted on top of the main instrument cover on each side of the HUD (see also photo on previous page).
Maps, technical manuals or occasionally an isssue of the latest Playboy or Penthouse can be stowed here.

(Top right) The area aft of the ejection seat with the emergency oxygen bottle attached to the seat launching rail. The canopy actuator can be seen in the back. Note the circuit breaker panel directly behind the actuator.

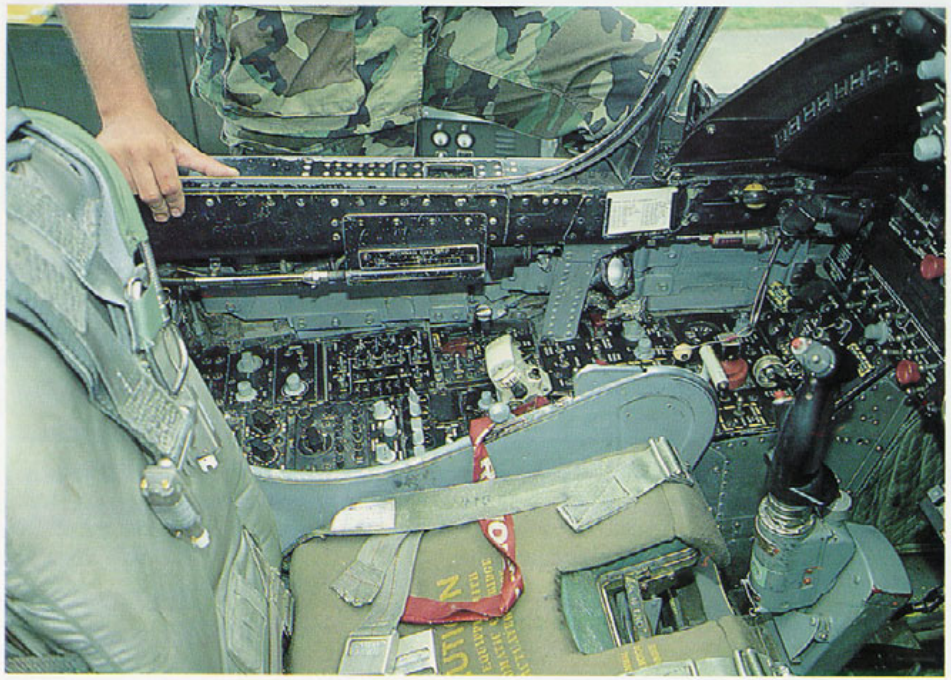
(Right) The right console holding most of the navigation control instruments. Part of the seat can also be seen as well as the oxygen hose coming from behind the seat.

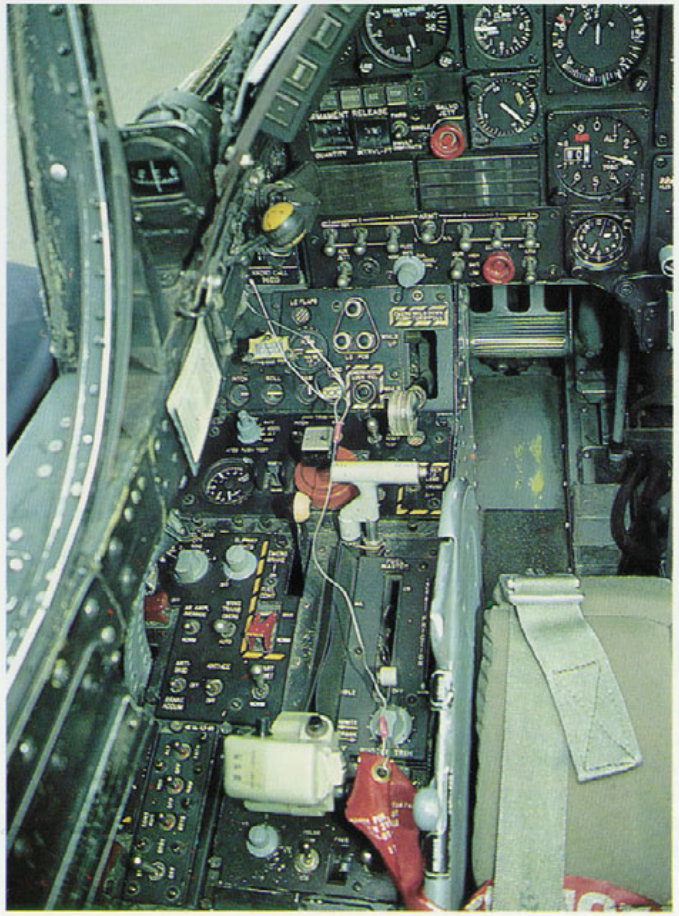
An overall view of the ESCAPAC 1C-2 ejection seat and the area behind the seat. The oxygen hose and voice connector cable can be seen aside the ejection seat launching assembly.
The rubber-covered outlet on the aft cockpit framing is part of the canopy climatisation and defogging system. Note the aft inner bulkhead of the raised canopy and the canopy seal.

Ssgt Wessling and Sfc Schreck conducting tests on the aircraft's navigation system.
Most interesting in this view is the canopy inner frame and the canopy piercing knife mounted on the frame. When looking through the perspex windscreen on can see the pouches mentioned earlier from above.
Note the yellowish canopy seal.




DANGER





(Previous page) The left side of the cockpit completing the roundup. Note the distinctive shape of the aft canopy framing and the angle of attack vane in the top right photo. The left console with a detailed view on the throttle quadrant can be studied in the two bottom pictures. Note the remove before flight tag attached to the canopy emergency actuators.

Two A-7D's on take-off. Despite the lack of an afterburner, "clean" A-7's don't need much runway to get airborne. Notice the main wheels fold forward into the well while the nose gear retracts backwards into it's housing.The wingman is watching his "lead", prepared to take evasive action in case something goes wrong during take-off.

Unlike what most people think the A-7K is not the trainer version of the A-7D in the true sense of the word. In fact, the A-7K (no T precedes the designation!) is an updated version of the single seater but especially intended for use with the Air National Guard units to train newcomers on this type of aircraft. But, unlike any "normal" trainer aircraft the A-7K retained full combat capabilities making it easier to convert new pilots and make them familiar with the onboard weapon systems.

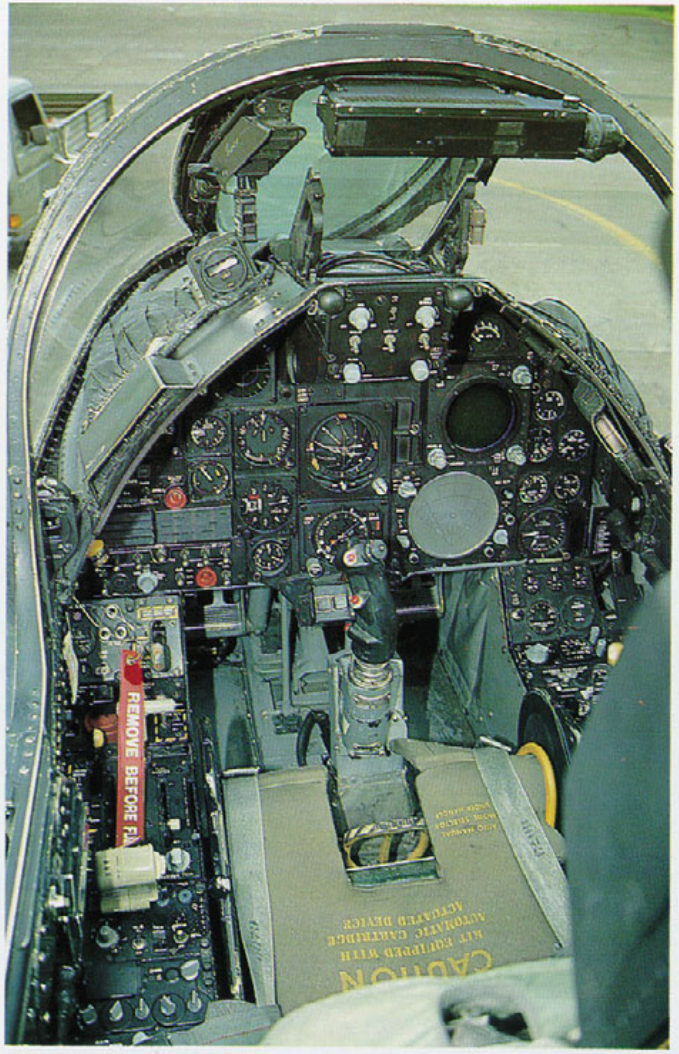
The A-7K is stretched by 16 inches forward of the wing to take the extra ejection seat and by 18 inches in the aft section to restore the center of gravity. Engine, flight systems and landing gear remained the same but a larger inflight refueling receptacle was installed on top of the spine.
Total fuel capacity remained 1,425 gallons internally and when added to the four external tank load of 1,207 gallons resulted in an overall total of 2,632 gallons of fuel being carried.

A-7K

(Top left) The crewchief is making sure the backseater, passenger or dead weight as the second pilot sometimes is called,touches the right buttons before closing the hood. In this case the backseater is Belgian Air Force photographer Antoine Roels preparing for a photo-session on board the A-7K. It will take him over the Belgian Ardennes and over the beautiful German Rhine valley. Some of the shots taken are included in this book.

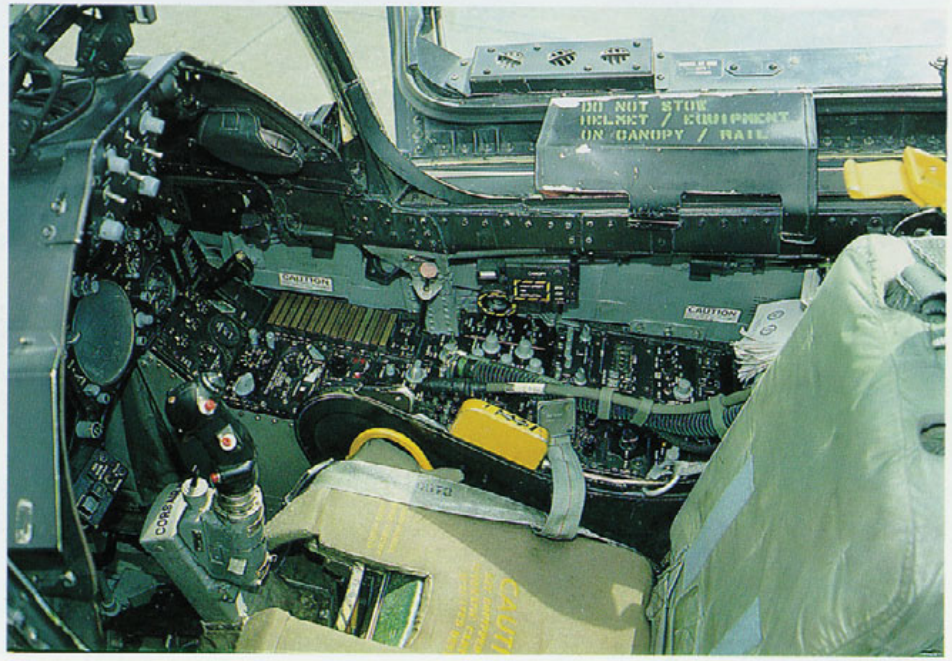
(Top) The inflight refueling receptacle on the A-7K is much larger as on the A-7D and is located on the centerline and not offset to the left as on the A-7D. Three air refueling flood lights are located just aft of the cockpit, of which one can be seen here. Note the white direction marking to help the boomer in the tanker aircraft.
Note the upper anti-collision light is mounted on top of the receptacle.

(Left) An overall view of the windscreen and nose section of the A-7K. Note the pilot's name in fancy lettering below the windscreen and the handhold above it.



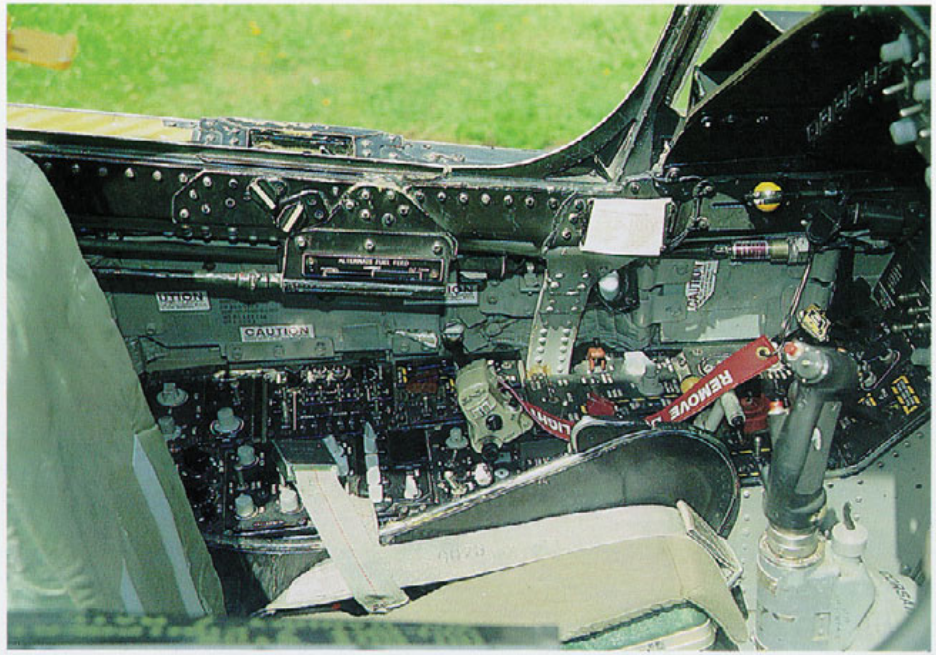
As can be seen here the front cockpit of the A-7K is exactly the same as the A-7D. After all, it is an A-7D conversion. Modelers have been known to argue about this.

(Top right) The emergency oxygen bottle for the frontseater is mounted on the same spot as in the A-7D. Note the map holder stowed underneath the canopy rail.



(Right) The right console in the front cockpit of the A-7K. Instruments are the same, colors are the same.

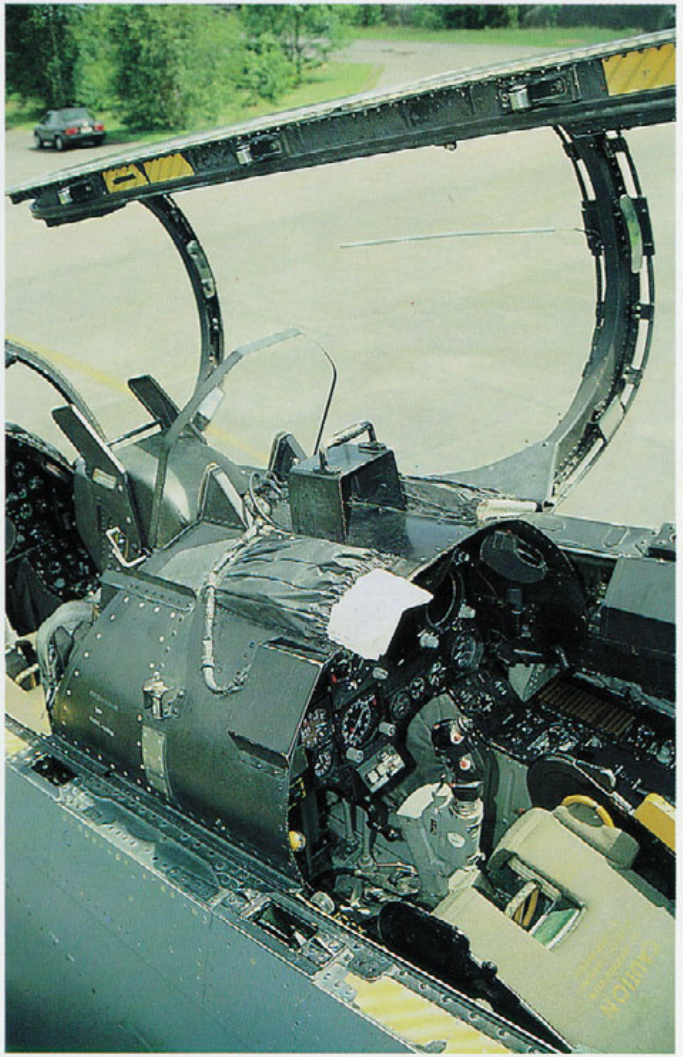
The 1C-4 ESCAPAC ejection seat in the front cockpit of the A-7K. Note the canopy piercers on top of the seat and the small window between the cockpits to protect the rear seater in case of a birdstrike or when a canopy loss occurs.
These two pictures allow you to study the canopy rail and the canopy locks of which four are present. Note the G-suit connector aft on the left console in the top picture.



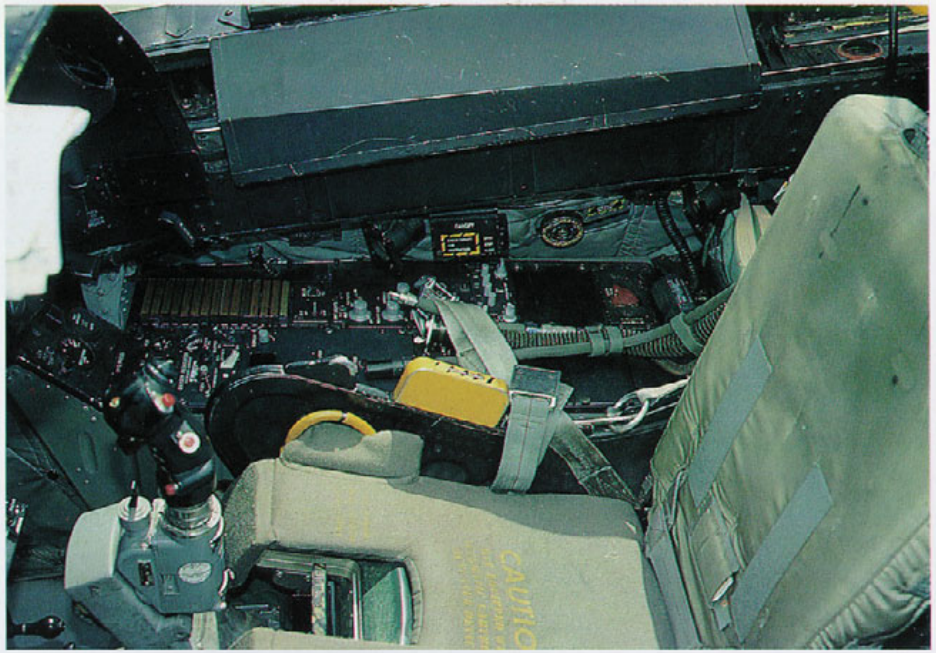
Instead of having two separate hoods tilting backwards (like the Phantom) the A-7K has one large side-swinging canopy which is hinged on the right side of the aircraft (whereas F-104 hoods were hinged on the left). This made photographing the left console not easy.

The large perspex hood is halted in an upright position rather than swinging all the way through. The four hinges can clearly be seen. Notice the "West High Wolverines" sponsor badge.

The cover over the aft instruments has the same two pouches as in the front cockpit. The box with the handhold on top of it houses the standby compass.
The thickness of the glass window between the cockpits is quite evident.

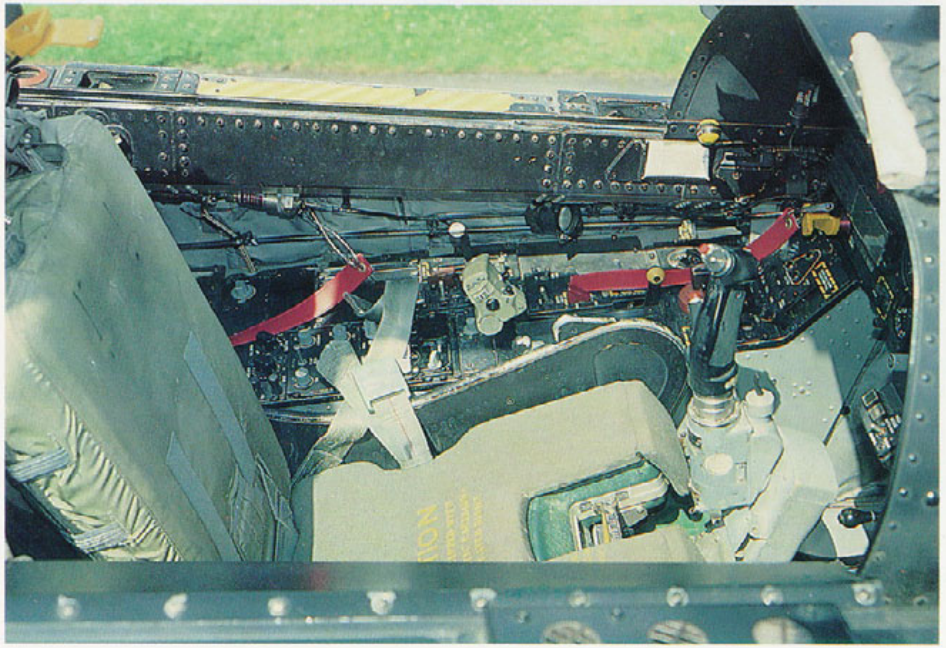


(Bottom) Not that much different from the front cockpit instrument panel, but the projected map display is not installed in the aft cockpit. Note the co-pilot has full flying controls and is therefor able to fly the aircraft whenever necessary.
(Right) The right console is missing the navigation instruments as can be seen in this view. Also apparent here is the difference in texture of the seat's parachute pack and the seat cushion.
(Bottom right) Another picture taken through the canopy showing the way the ejection seat launch rails are mounted against the rear bulkhead.

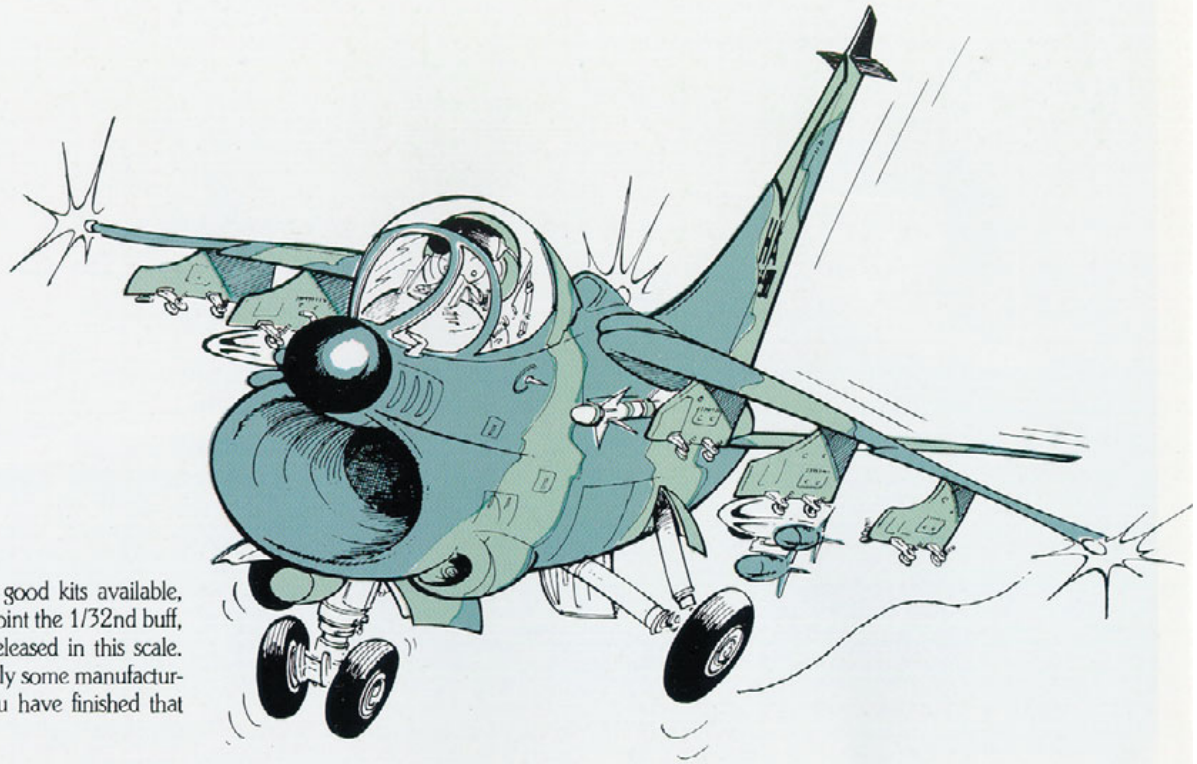


(Left) The seat viewed from the right side of the aircraft. This time it is an 1C-5 ESCAPAC which was developed to fit in the rear cockpit. The position of the three refueling floodlights can be determined.

(Below) Left of the rear cockpit seat is seat safety pin stowage box which features a seat pre-flight checklist. Note the various safety pins installed to the seat and to the rest of the cockpit.



Col. Dennis Swanstrom and Antoine Roels going through the pre-flight check procedures. When all systems are explained and the passenger knows what to do the moment Col. Swanstrom yells : "EJECT, EJECT, EJECT!" it is time to sit back and check all photographic equipment. Returning from a one-hour flight and discovering you forgot to load your cameras is something you don't want your friends to know, let alone tell your superiors. Anyway, the flight was "near-perfect" as can be judged from the beautiful inflight shots in this book.



KIT REVIEW

Fortunately for the A-7 freak, there are some very good kits available, both in 1/48th and 1/72nd scale. We have to dissapoint the 1/32nd buff, because to our knowledge, no kit has ever been released in this scale. Scratchbuilding one is quite an endeavour and it is likely some manufacturer is going to release a 1/32 A-7, the moment you have finished that model which took you two years to built.

For those who are satisfied with a quarter-inch scale model, we can highly recommend, once again, Hasegawa's beautiful A-7E and A-7D. Various boxes have been released, including the early style camouflaged navy aircraft, the later "low-visibility" style painting as well as the Air Force A-7D in the gray-green wrap-around scheme.

While this book was in preparation, an A-7E & D Update Set was planned with Verlinden Productions which is due to be released early 1991. This among other things will include an up-to-date ESCAPAC ejection seat.

The 1/72nd modeler will have the choice between the Hasegawa kits and the later Fujimi kits. Both are very good kits and both have their positive and negative points, but they both are good value for money with the Fujimi kits a little on the expensive side.

The list of available decals for the A-7D is endless. Because we still believe in "seeing for yourself" rather than "reading about it" we advice you to stop by your local hobby dealer and ask him to show you the available decal sheets.

Have fun and happy modeling!

the world in scale
VERLINDEN PRODUCTIONS
VERLINDEN PUBLICATIONS
Modeling books & accessories
Dudenaarsestraat, 4
9340 Zone Malleko t
B-2500 Lier / Belgium