A-6E, KA-6D INTRUDER
EA-6B PROWLER

LOCK ON N°20
AIRCRAFT PHOTO FILE
798

VP
the world in scale

Willy PEETERS

A-6E TRAM Intruder
VF-176 "Thunderbolts"
USS Forrestal, US NAVY

VP
the world in scale

Cover: Partially engulfed in steam from the bow catapult, KA-6D "521" assigned to VA-176 "Thunderbolts" is being prepared for another sortie from the launchpath of the USS FORRESTAL.

Title Page: A6-E TRAM of the same squadron gracefully descending towards the deck, aiming for the number two wire. With the number three wire gone, the number four cable is the only alternative for a safe "trap".

Page 3 : The two subjects of this book, the A-6E Intruder and the EA-6B Prowler, side by side on the rear right elevator of the USS FORRESTAL, well clear of the angled recovery area.

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
811, Lone Star Drive
Lone Star Industrial Park
O'Fallon, Mo 63366
USA.
Tel. (314) 281-5700.
Fax (314) 281-5750.

Project Manager & Chief Editor : François VERLINDEN
US Editor : Bob LETTERMAN
Text & Research : Willy PEETERS
Layout : Willy PEETERS

Photogravure : SCANBO/Beerzel Belgium
Printed by : Drukkerij DE PEUTER nv. /Herentals Belgium

ACKNOWLEDGMENTS

Two important happenings allowed this photographic coverage of the A-6E Intruder & EA-6B Prowler.
First was my visit aboard the USS FORRESTAL in August 1991, made possible by the following persons : Commander QUIGLY, Lt FALLON and Lt O'SHAUGHNISSY of US Navy Sixth Fleet, Italy; CPT P.C. BISHOP and Lt PAPP of US Navy HQ /London.
Aboard the ship we (myself and my friend Ronny MEURIS) were welcomed by Rear Admiral Walter J. DAVIS, Jr Commander Carrier Group Six and the skipper Captain Robert S. COLE. I want to thank them for a warm welcome.
Lt. John F. KIRBY, Personal Affairs Officer aboard the ship had the shootings carefully planned within the limited time frame. His assistance and that of "Stevie", (our guardian angel on the flight deck with operations in progress) was greatly appreciated.
A great "thanks" is also due to Peter MIDDELBURG and Lt. NEVINS at Tel Aviv for arranging the hop to the seaborne carrier and to the COD crew who got us there (and back again) safely.
The second event was the visit of five USS SARATOGA birds to the Koksijde Air Show in July 1992, allowing a closer look at both the A-6E Intruder and the EA-6B Prowler. Both crew were very cooperative and allowed full coverage of the cockpits which were at full operational status (with few exceptions). My sincere thanks go to Lt John "Frito" FREDAS and Lt Derrick "Cheese" DIXON of VA-35 "BLACK PANTHERS" of the A-6E Intruder; and the crew of the EA-6B Prowler, LCdr Lee "Hartless" HART, LCdr Steve "Chewy" Rorke, Lt Greg "Okie" THOMAS and Lt Doug "DC" CLARK flying with VAQ-132 "SCORPIONS".
Belgian Air Force staff members LtCol Emonts-Gast and AdjC PATERNOTTE deserve a warm thanks for allowing me on base to welcome the USS SARATOGA jets.

Willy PEETERS

Readers are invited to send in slides and/or clear color photographs on military subjects which may be used in future LOCK ON publications. Additional information on military aircraft of any kind is also welcomed. Material used will be paid for upon publication and unused material will be returned upon request. Original slides and photographs will be handled with extreme care.
Clearly state name and address when sending in your material.

INTRODUCTION

Wanted by both the MARINES and the UNITED STATES NAVY as a long-range, all-weather, medium attack aircraft; Grumman's project A2F-1 which started decades ago, (1959 to be precise), is still playing a vital role in the Navy's strike force. The prototype A2F-1 made its maiden flight on 19 April 1960 and the A6 Intruder (its officially adopted name) has ever since performed so well that a planned successor never got off the drawing board. Carrier qualification trials went underway in December 1962 starting with Intruder N°8 flying from the USS ENTERPRISE (CVN-65). Actually, the Intruder was the first Navy aircraft to use a nose wheel bridle for launching. Once launched, it could carry a load of 15,000lb (6800kg) of bombs and missiles and, after taking fuel in the air, fly a radious of 1,000 miles (1610km) at medium altitude to strike a target at night or in bad weather. Just what the Navy wanted ! But, when Soviet tactics changed dramatically by downing Gary Powers' Lockheed U-2 with a SAM (surface to air missile) it became obvious that strike missions were best flown at tree-top level and ECM measures needed to improve.

Over the years, several systems were tested with the inclusion of the EW (Electronic Warfare) EA-6E variant, a Marine Corps initiative. Characterized by a fintip fairing to accomodate the ALQ-86 receiver/surveillance system and several pylon-mounted ECM-equipment it had most of its standard attack avionics removed, however retaining limited all-weather bombing capability.

Where this version of the Intruder initiated the development of the EA-6B Prowler, in many respects a totally different aircraft with increased countermeasure- and detection capabilities (operated by a crew of four), the A-6E attack aircraft was subject to a series of programs too improve its tracking capabilities. The A-6E TRAM, first introduced in 1979, had a 20-in diameter ball turret beneath the radome housing a detecting and ranging set (DRS), forward-looking infra-red set (FLIR), laser receiver/transmitter (LRT) and laser receiver (LR).

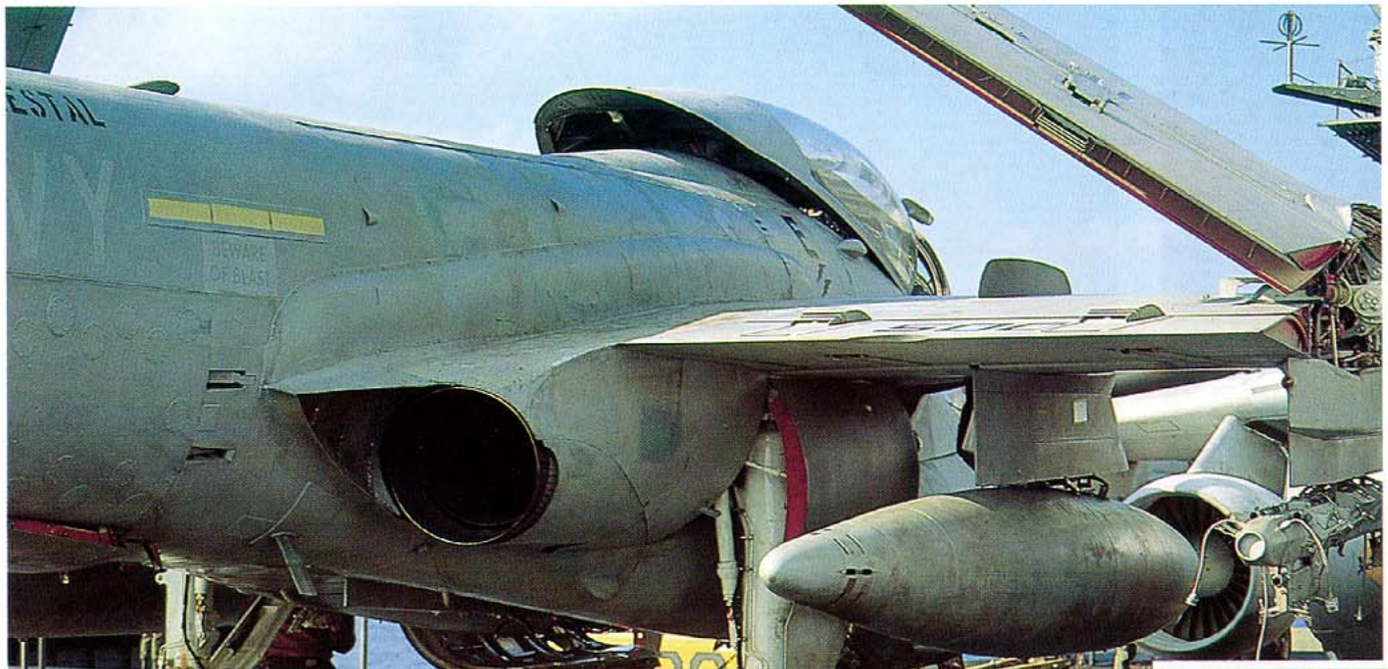
The widespread need of in-flight refuelling aircraft in Vietnam had the Navy deciding to proceed with a tanker variant of this airframe, redesignated KA-6D, stripped of bomb-aiming and radar systems but with "buddy"-pod on the centerline and a hose-drum unit replacing the navigation equipment in the bay below the tail.

All four variants of this basic airframe (including the "extended" Prowler) are subject of this book. Not all detail has been shown but that would be impossible within the limited space of the following pages.

Left: starboard study of the A-6E TRAM Intruder nose section with sliding canopy in full open position, providing ample room for the pilot and WSO to board the aircraft. Note the tinted appearance of the front split windscreen and the radiation shield inside the canopy.

Bottom left: MER (Multiple Ejector Rack) with six light blue practice bombs mounted to the starboard outer wing pylon. Almost every type of ordnance in the US Navy and Marine Corps inventory can be carried on five hardpoints, two on each inboard wing and one on the belly centerline.

Below: The external power receptacle is located just aft of the starboard built-in boarding step which is painted bright red inside. Note the low-viz markings.

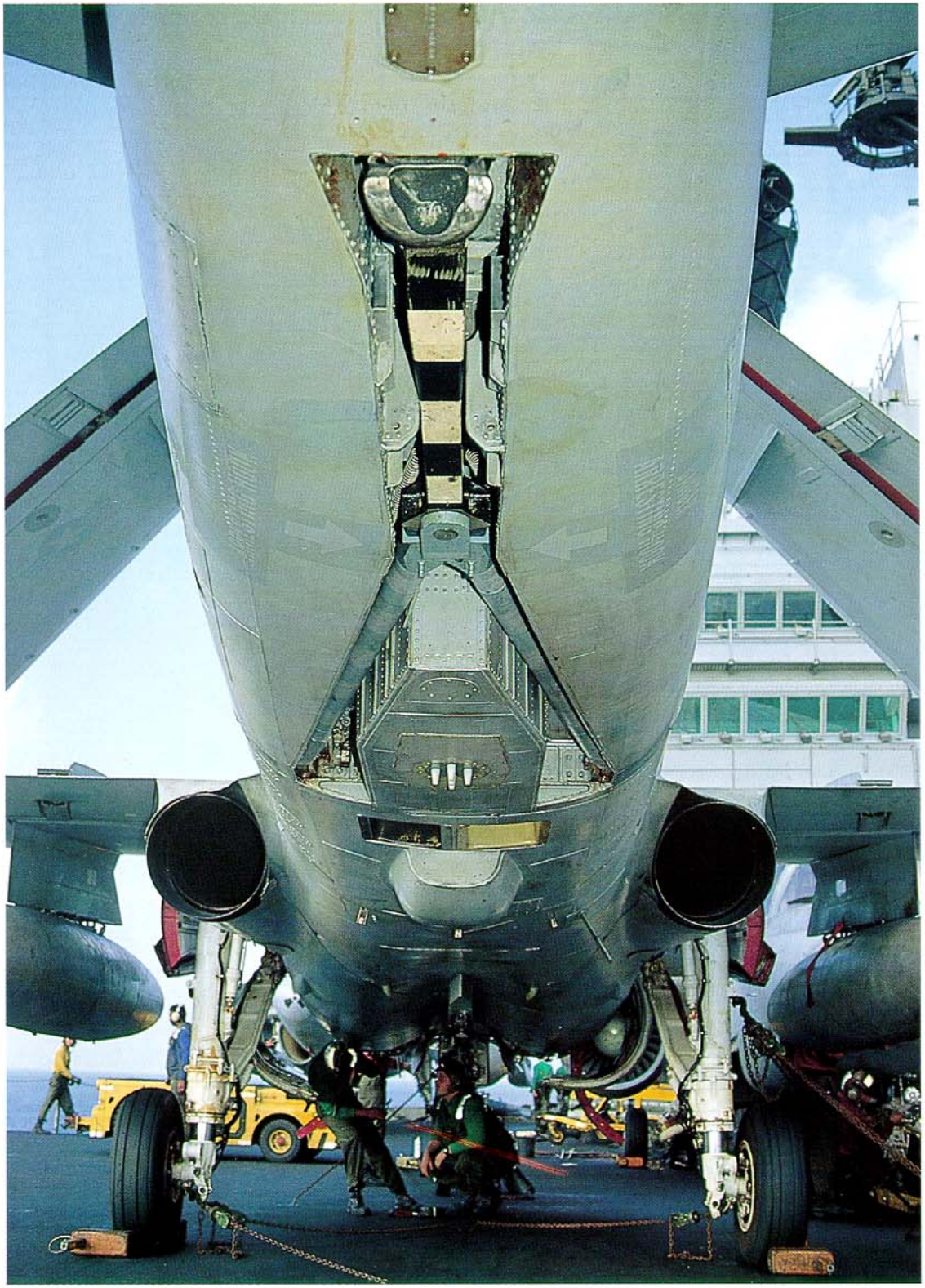


Left: The 300 gal external fuel tanks carried on the inboard pylons feature only one fin at the bottom. Note the outboard pylon is virtually located on the wing joint of inner and outer wing section. The aft part of the mid-fuselage fairing is taken by the downward canted exhaust pipes (a remainder from the initial tilted tailpipe design for increased lift).

Bottom left: Inboard and inside detail of the Multiple Ejector Rack of the same Intruder. Fuel tank in the background is of another aircraft.

Below: Inboard detail of the massive starboard main landing gear strut with forward retracting assembly. Note detail of the inboard wheel hub and hydraulic brake lines.

Immediately aft of the exhaust area is a belly-mounted extensible equipment platform or the "Birdcage" (hinged at the front), containing chaff dispenser, some avionics and the AN/APN-153(V) Doppler navigation radar antenna. It is shown here from port side, front (top picture) and starboard side, aft (bottom picture).
The large picture focuses on the vertical tail with enlarged rudder for improved spin recovery (compared to prototype). Note the navigation light at the trailing edge of the rudder and the fuel dump pipe just beneath the rudder hinge line.

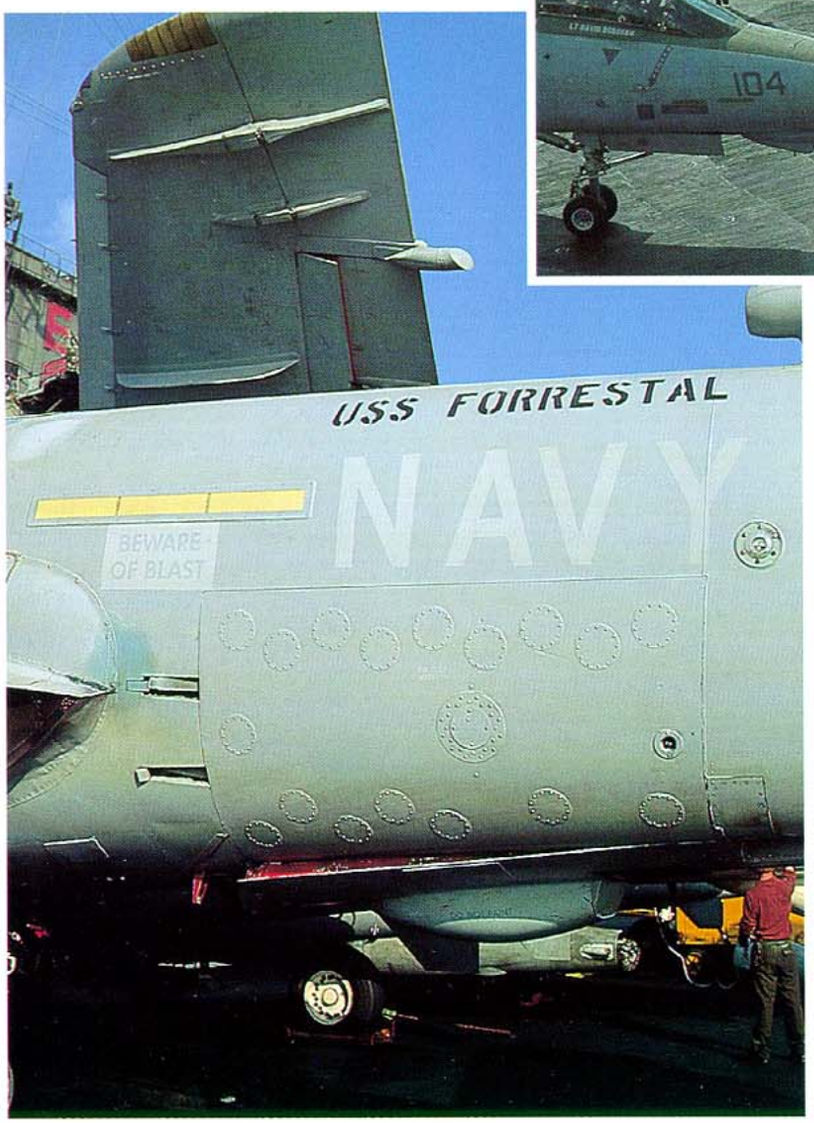


Unlike most carrier aircraft which have a single arrestor bar mounted externally below the aft tail section, the A-6 Intruder's arrestor hook is partially fork-shaped and enclosed in a belly housing. The spaced position of the hook attachment hinges allows a more stable recovery. Note the Chaff/Flare dispenser cage just in front of the arrestor hook housing and just aft of the Doppler radar.

A large pitot tube extends from the leading edge just above the red anti-collision light. The large fairing at the trailing edge houses ECM antennas (ALQ-126 DECM and ALR-67 threat warning receiver aerial) as does the top fin leading edge. Note the deflection marker just in front of the all flying tail. Modelers shouldn't worry for a prestine paint job on their models because almost all carrier-based aircraft have patches of oversprayed paints to protect the aircraft's skin from corrosion, as witnessed in this photo. Also note the gray/black appearance of the AE code on the rudder. The mailed fist squadron emblem is quite similar to that of VFA-25 "Fist of the Fleet" but belongs to VF-176 "Thunderbolts", a squadron disbanded shortly after the final cruise of the USS FORRESTAL in 1991 as part of the defense budget cuts.

A6-E being guided onto the launch path of Cat N°1, the trailing edge flaps/flaperons already in the 30° take-off setting.

Below: Early A-6A design featured two fuselage mounted speed brakes with anti-buffeting perforations. These air brakes were soon eliminated or bolted shut from all subsequent Intruders, except the EA-6A and apparently the KA-6D shown at bottom right. Note the Hose Drum unit with retractable refueling hose fitted on the Doppler housing. KA-6D's are equipped with a new fuel system while the wings and rear fuselage were strengthened.



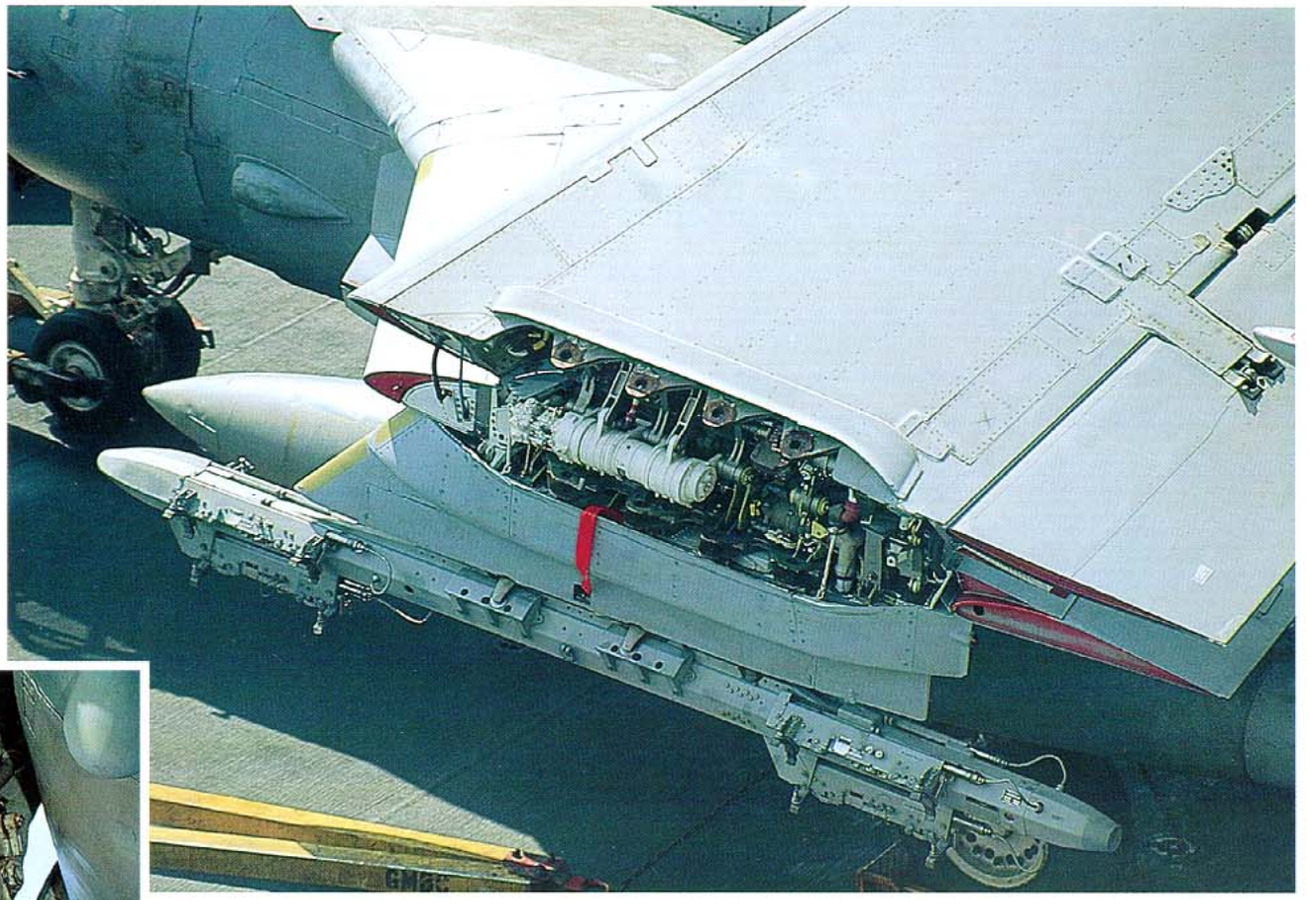
To facilitate on deck maintenance on the PRATT & WHITNEY J52-P-8B turbojet engines, the large engine bay doors are hinged at the top and sway outward allowing free access to the auxiliary engine systems. Note these sway doors are painted white inside. Also note centerline pylon detail at right.

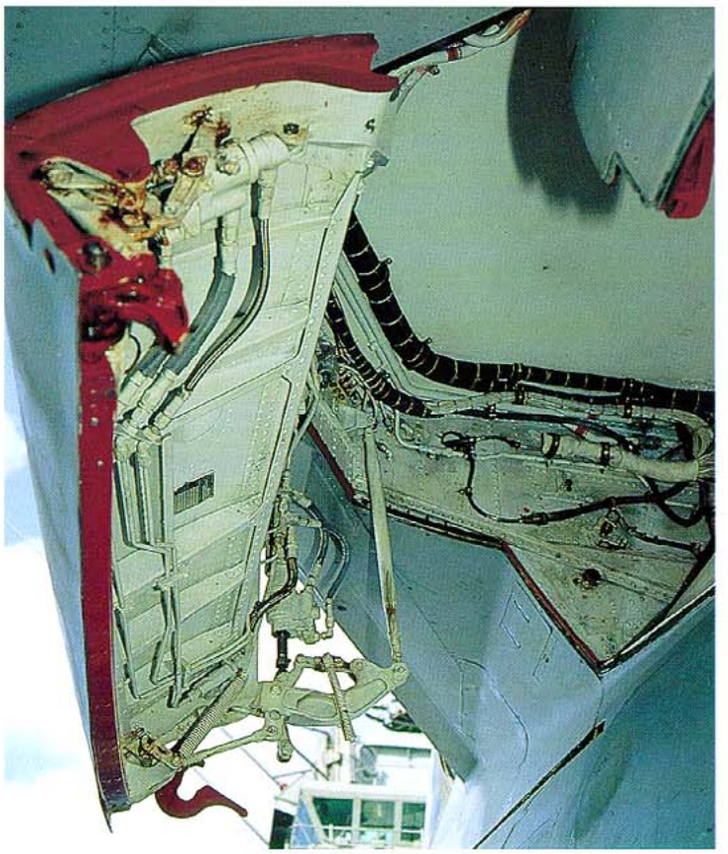
(Below) Although the variable tilting tailpipes were eliminated from all production aircraft, because they did not meet with the initiated STOL requirements, the outboard (and slightly downward) skewed tailpipes were maintained to divert jet blast away from the horizontal stabilizers.
Carried on the centerline pylon of the KA-6D refueling Intruder is an additional D-704 buddy pod with retractable drogue at the rear and ram air turbine in the nose section providing its own power. The bulges in the aft section of the pod create space for the internal hose-reel rewind drum.

The first unit to receive the upgraded A6-E wings of composite graphite/ epoxy/ titanium/ aluminum components was VA-176 'Thunderbolts'. This wing update kit by Boeing Defense & Space Group is to prolong the A6-E service life and is claimed to have an increased resistance to corrosion. These redesigned wings also feature a more solid wing fold locking mechanism as shown on this and the following page.

In order to fold the wings without crunching the spoilers, the latter must be in neutral position with flaps in the "up" configuration. A mechanical device prevents the wings to fold otherwise, however the electrical backup system does not have this safeguard and if flaps and spoilers are operated electrically, the wing-fold mechanism will work, with disastrous results.

Stall-warning strips are installed on the forward wing fillet.





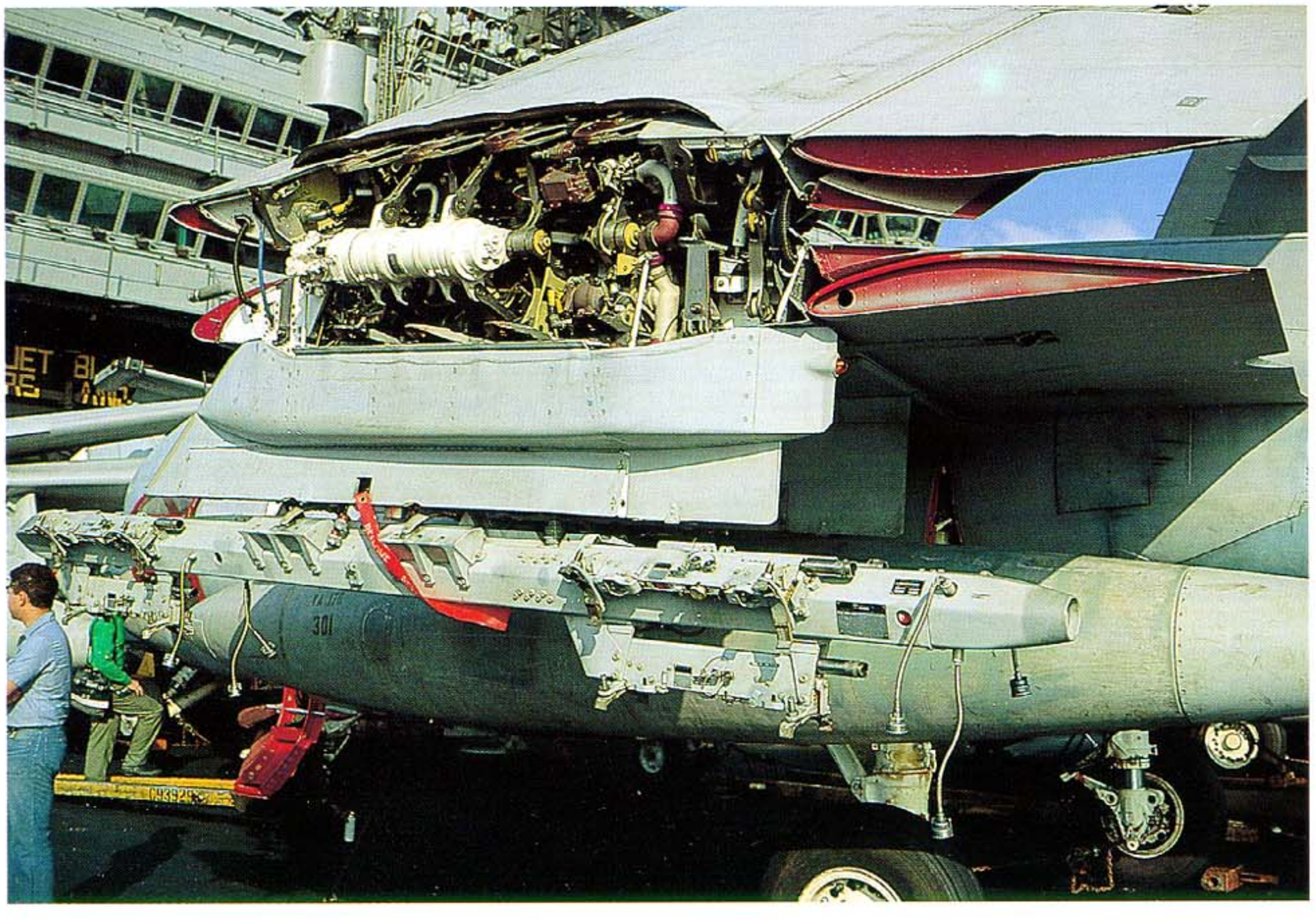
(Far left) The solid main gear air/oil shock strut rotates 82°, retracts forward and inward into the air-intake glove.

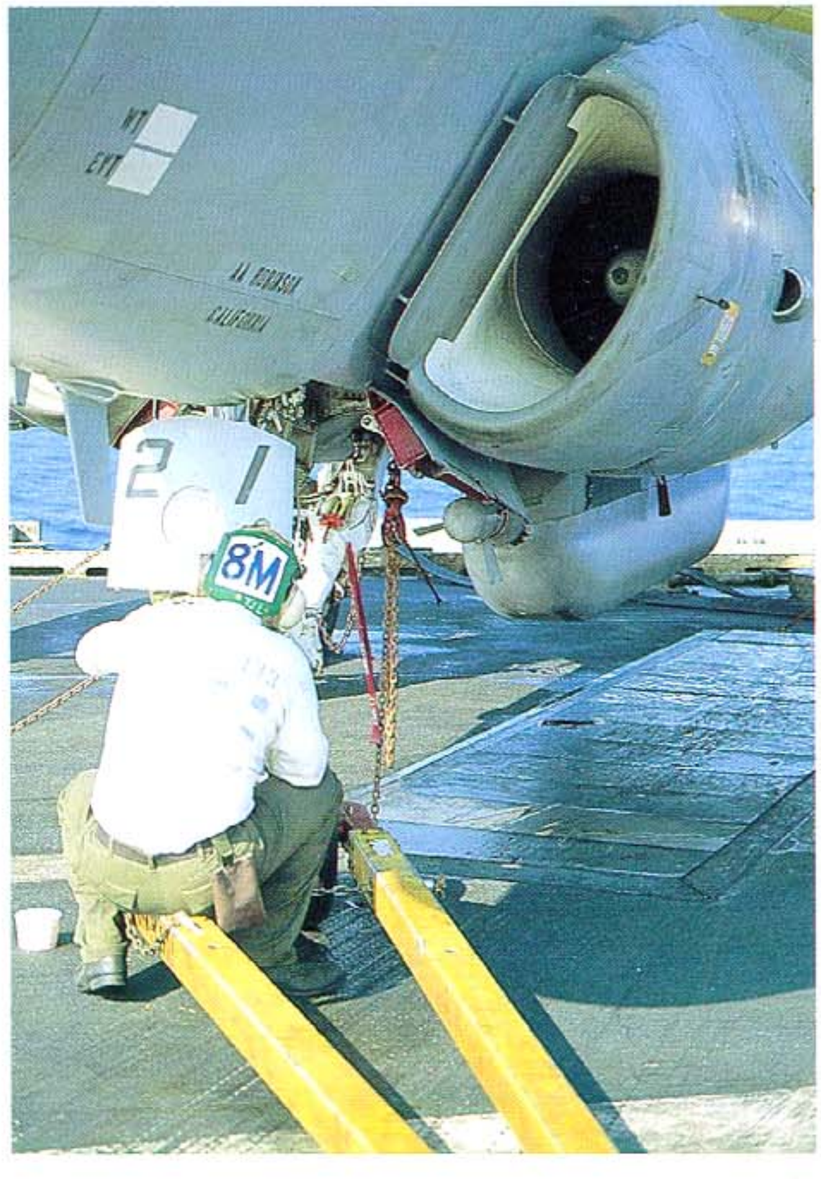
A mechanism compresses the shock strut so that it will fit into the well. An anti-lock system is provided to prevent landing with locked brakes. The single main wheel has a 36x11 tire fitted.

(Next page, bottom right) A close-up of the "cheeck" -type air intake with boundery layer separator between intake and fuselage. Note color of intake and intake lip.


01
A
E


E
301


301


21
8M

The equally solid nose gear strut includes a similar air/oil shock strut, dual wheels with 20x5.5 tires, supporting drag strut and nosewheel steering mechanism which is automatically engaged when the arresting hook is deployed. The Intruder design was the first to introduce a new way of launching carrier-based aircraft with a nose wheel bridle to be hooked up to the carrier's steam catapult shuttle.

The attachment for the launch holdback bar can be seen between the dual wheels in the picture above. Stowing the nose gear strut is simple, retracting rearwards and up into the nose gear well which is shown at top right. Note that the inside of the wheel well and the wheel door is grey with only the edges of the doors being painted bright red. Also note the large landing light in the small forward gear door and the three carrier approach lights next to it.

The hydraulic steering unit is fitted to the starboard side of the nose gear strut. The yellow tow bar installation can also be determined in the picture above.

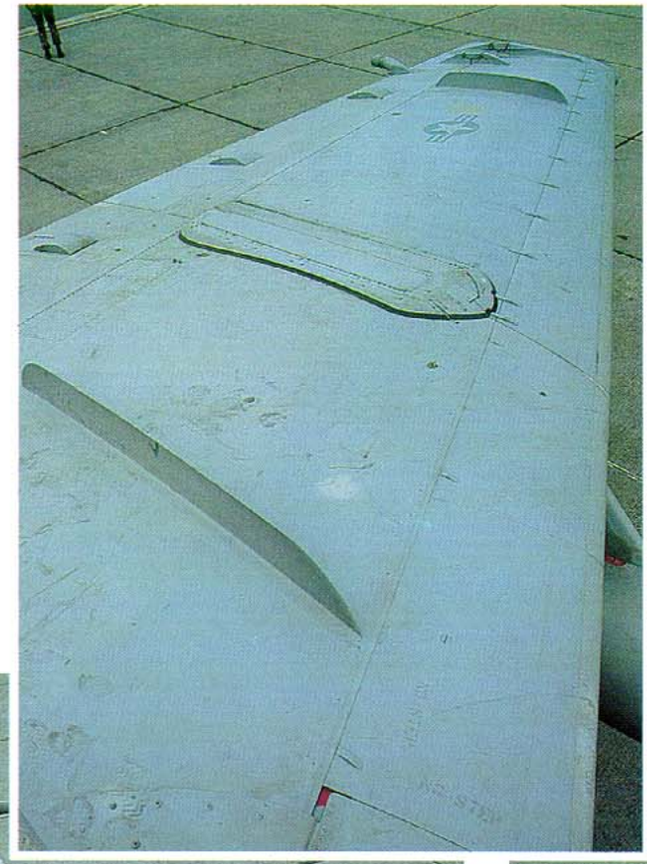
One of the main tasks of carrier plane captains and assistants is looking for corrosion spots, cleaning them thoroughly and patching them with fresh paint.

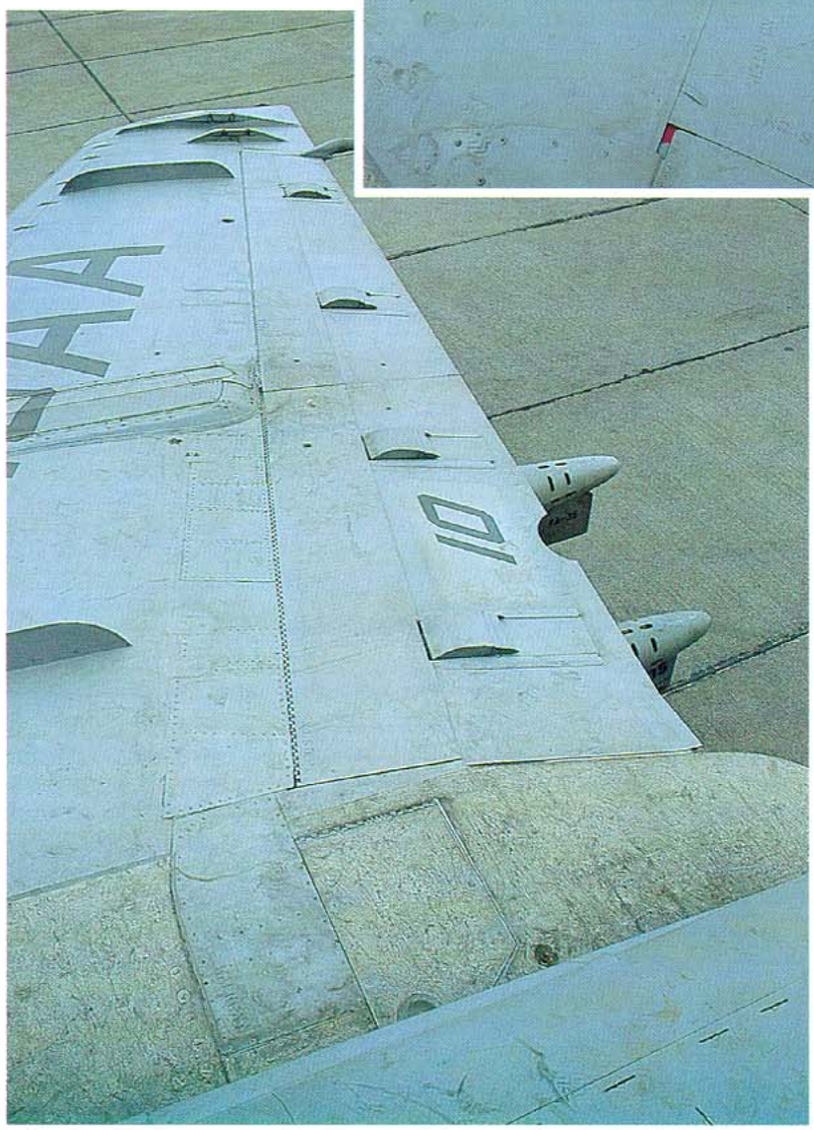
These two photos clearly illustrate the difference between the old style grey/white color scheme and the newly adapted "low-viz", all grey type of paint application. White lower fuselage areas and nose radomes (FS 17875 gloss) with bright red and yellow warning and rescue signs contrasted heavily with non-spec standard grey (FS 36440) upper sides. Anti glare panel in front of the wind screen was painted FS 37038 black. Note the heavy weathering on the upper intake and the scratches from the pilot's boots on the fuselage side.
The small panel immediately aft of the boarding ladder housing is the electrical power system test panel. Also note the static point within the red circle above the jet intake warning triangle.
As can be noticed on the panels below the forward wing fillet, the first spots to show corrosion are the panel screws which are here seen patched with a different shade of color.

All grey (FS 35237) A-6E TRAM with barely visible warning and rescue markings while retaining the black aircraft code number below the windscreen. The radiation shield inside the canopy can clearly be seen. The unique identifying feature of the A-6E TRAM (Target Recognition Attack Multi-sensor) is the precision-stabilized, partly-retractable sensor turret located beneath the nose radome, forward of the landing gear. This pod contains infra-red and laser equipment providing the crew with real-time television imagery of radar targets. The built-in FLIR and laser sensors allow multi-mode target identification in any weather condition, day or night.

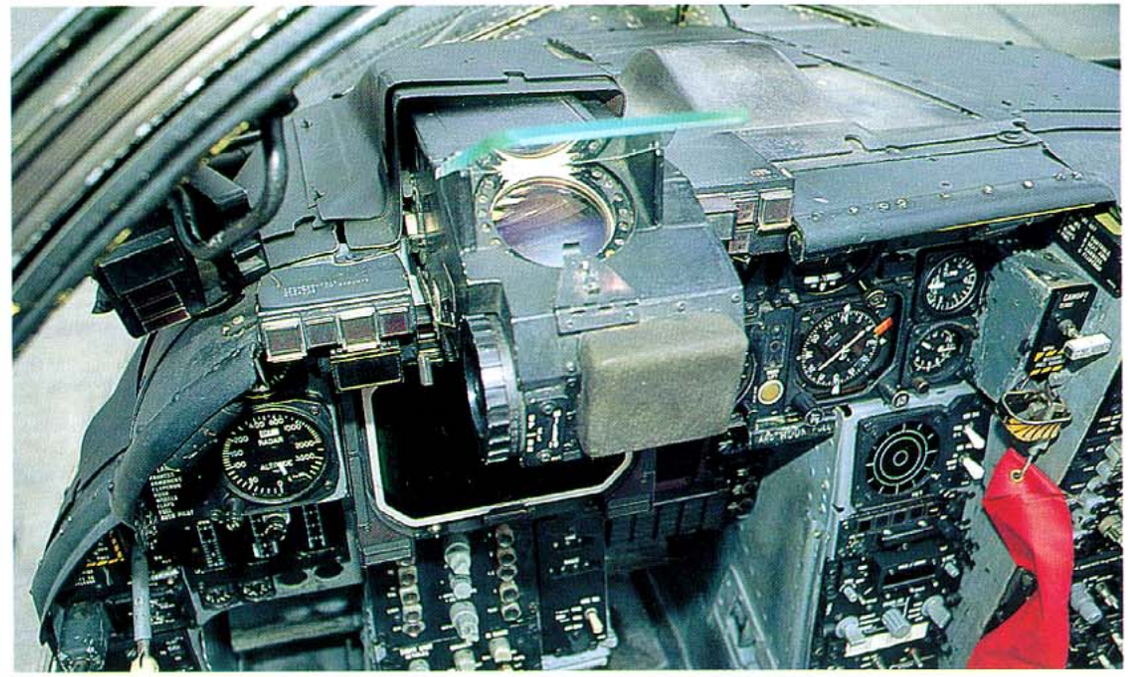
Intruder wings are characterized by very little wing sweep, only 25° at the quarter-chord; the full-span leading edge slats and trailing-edge flaps taking almost the entire 53 ft(16.154m) of wingspan. Instead of conventional ailerons for lateral control, spoilers (or flaperons) are provided in the upper wing surface, just in front of the flap track guides. Note the rough-textured walkways on wing areas and rear fuselage.

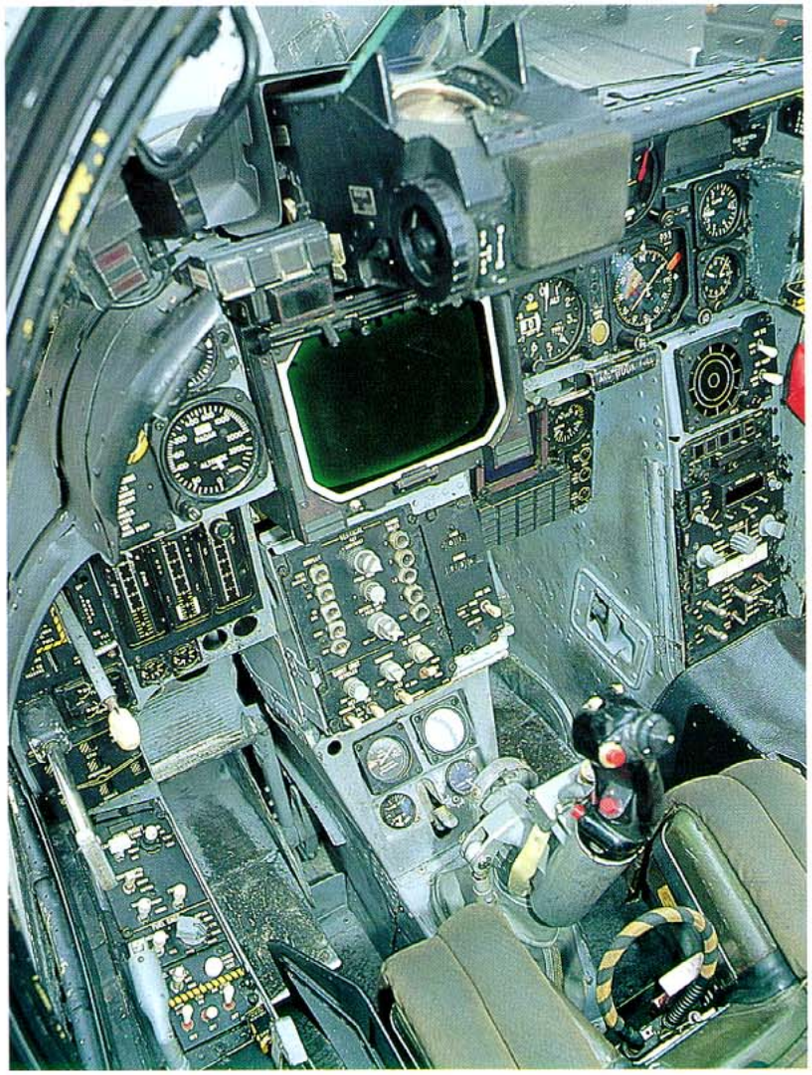
This particular A6-E CAINS (Carrier Airborne Inertial Navigation System) has the newly adopted Litton AN/ASN-92 inertial navigation system installed with additional air-conditioning turbine, indicated by the air scoop on the rear fuselage.





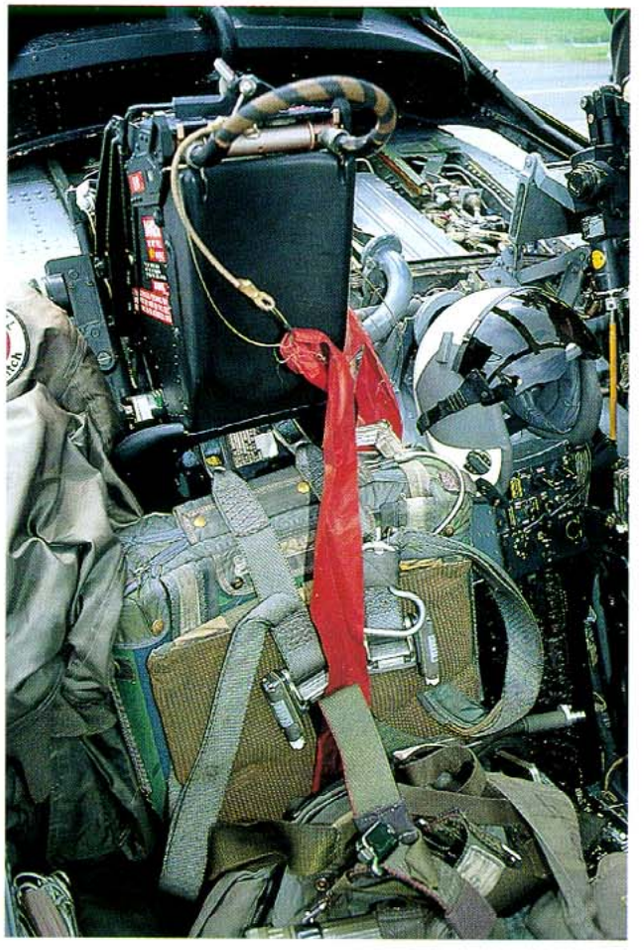
The Intruder cockpit (A6-E TRAM shown here) is spacious and features a side-by-side crew configuration with the pilot in the left seat, a few inches forward of the bombardier/navigator. This way, crew coordination during missions is greatly enhanced as certified by F-111 pilots in US Air Force service.
The pilot's main console is dominated by the HUD (Head Up Display) of simple design and the vertical display screen and operator panel below it.
Noteworthy is the control column integration in the pilot's main console.
The bottom right picture views toward the pilot's right hand console with, from top to bottom, the VDI control panel, the UHF communications panel and the autopilot operating panel. One can see the most forward panel on the center cockpit console being covered for security reasons. Even today, pilots are reluctant (and with good reason) to reveal all systems and related control panels.
Note the safety pin in canopy jettison handle.

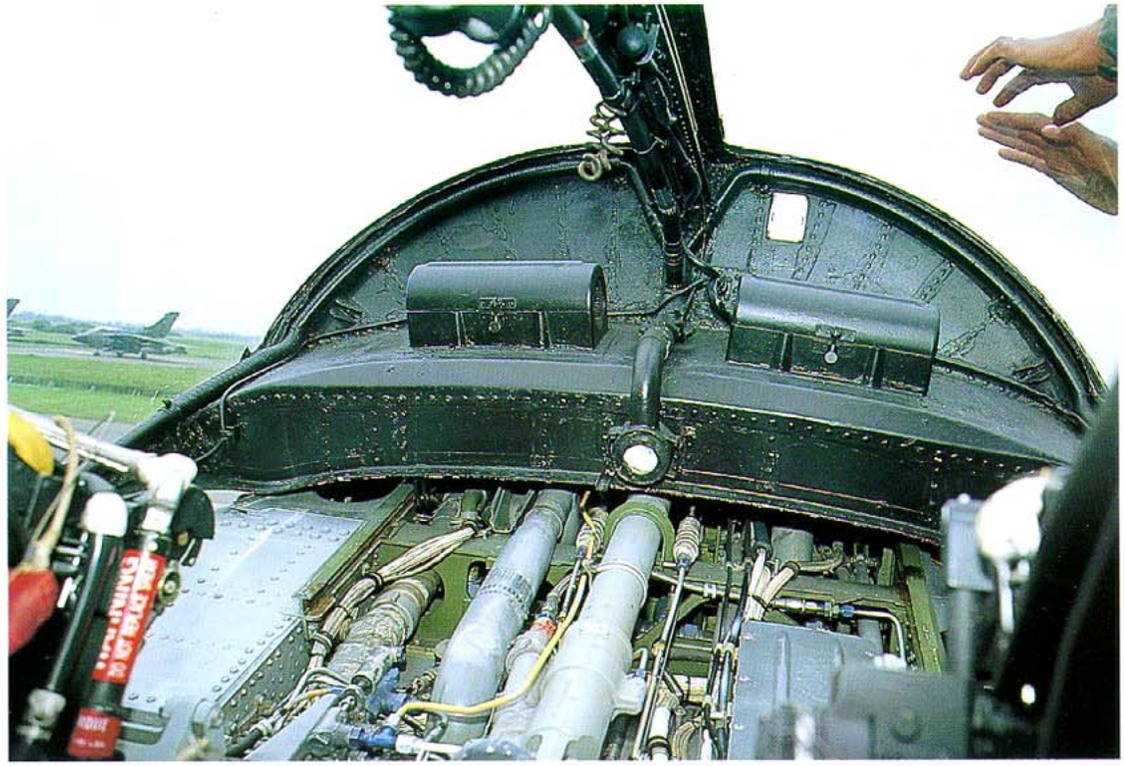




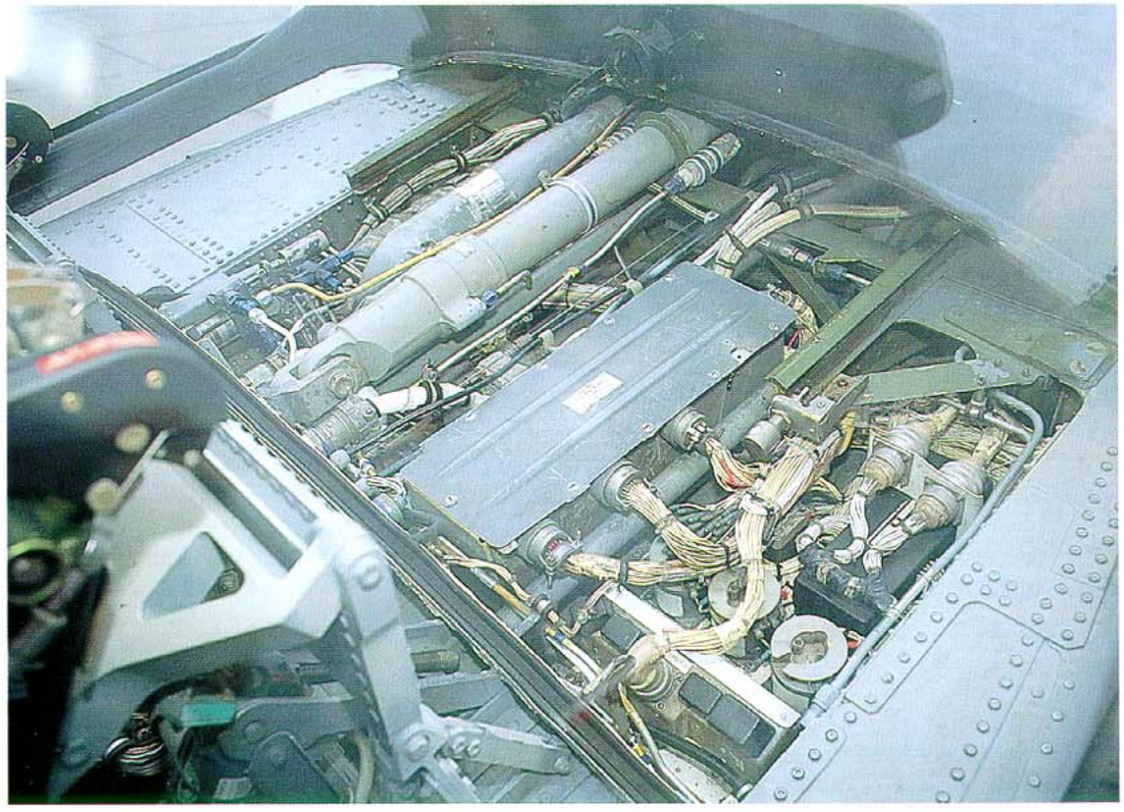
Important detail for modelers, seldom shown so clearly, is the overhead control column.

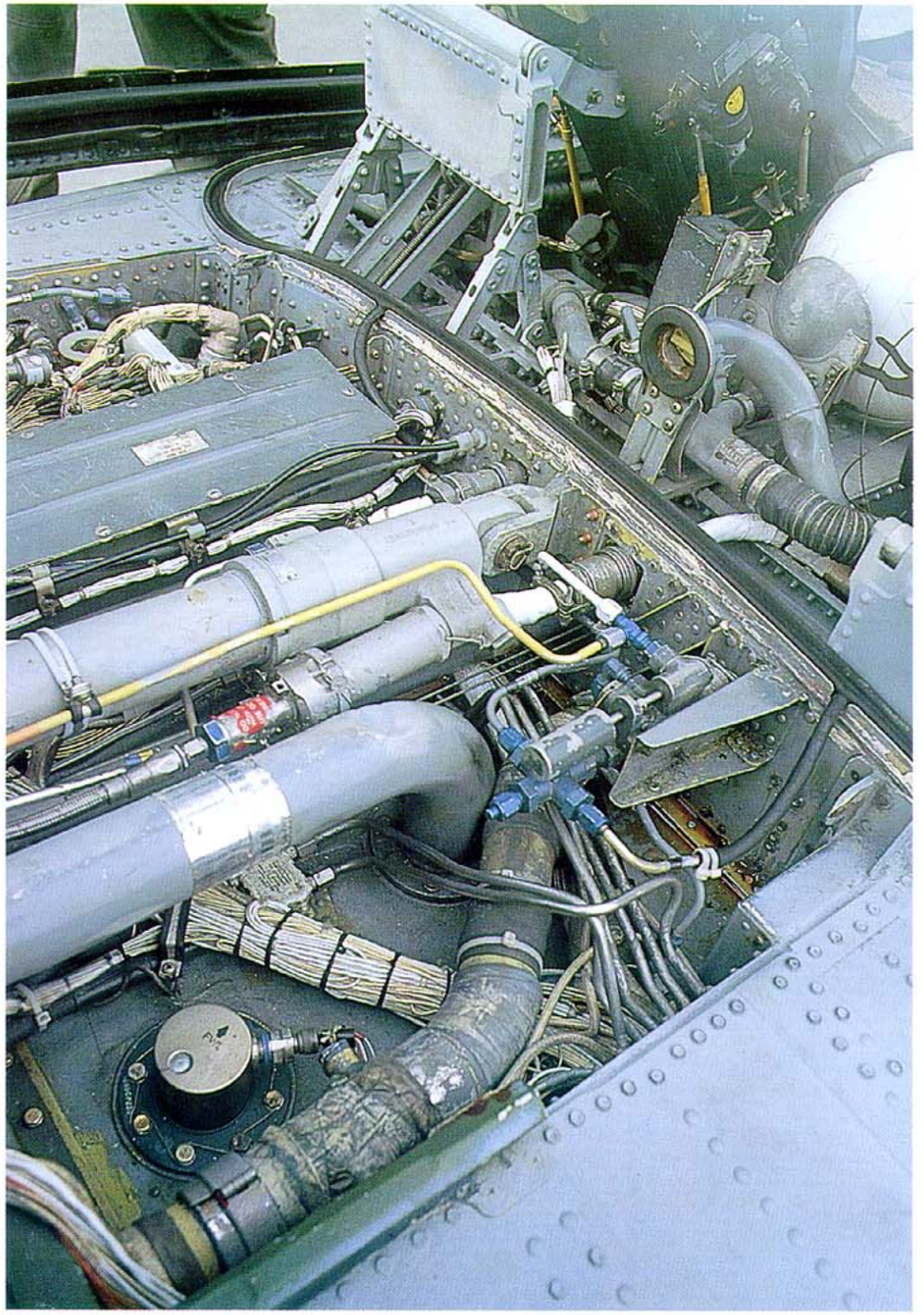
The rest of the page focusses on the B/N position with radar console centrally located. The control stick on the console below allows quick response while tracking. Further panels on the center cockpit console are for TACAN ,IFF and cockpit environmental control. The console mounted to the rear cockpit bulkhead holds the fuse panel, radar beacon and compass operating boxes.
Further coverage concerns the Martin Baker GRU-7 zero-zero ejection seat installed in the A-6E Intruder.



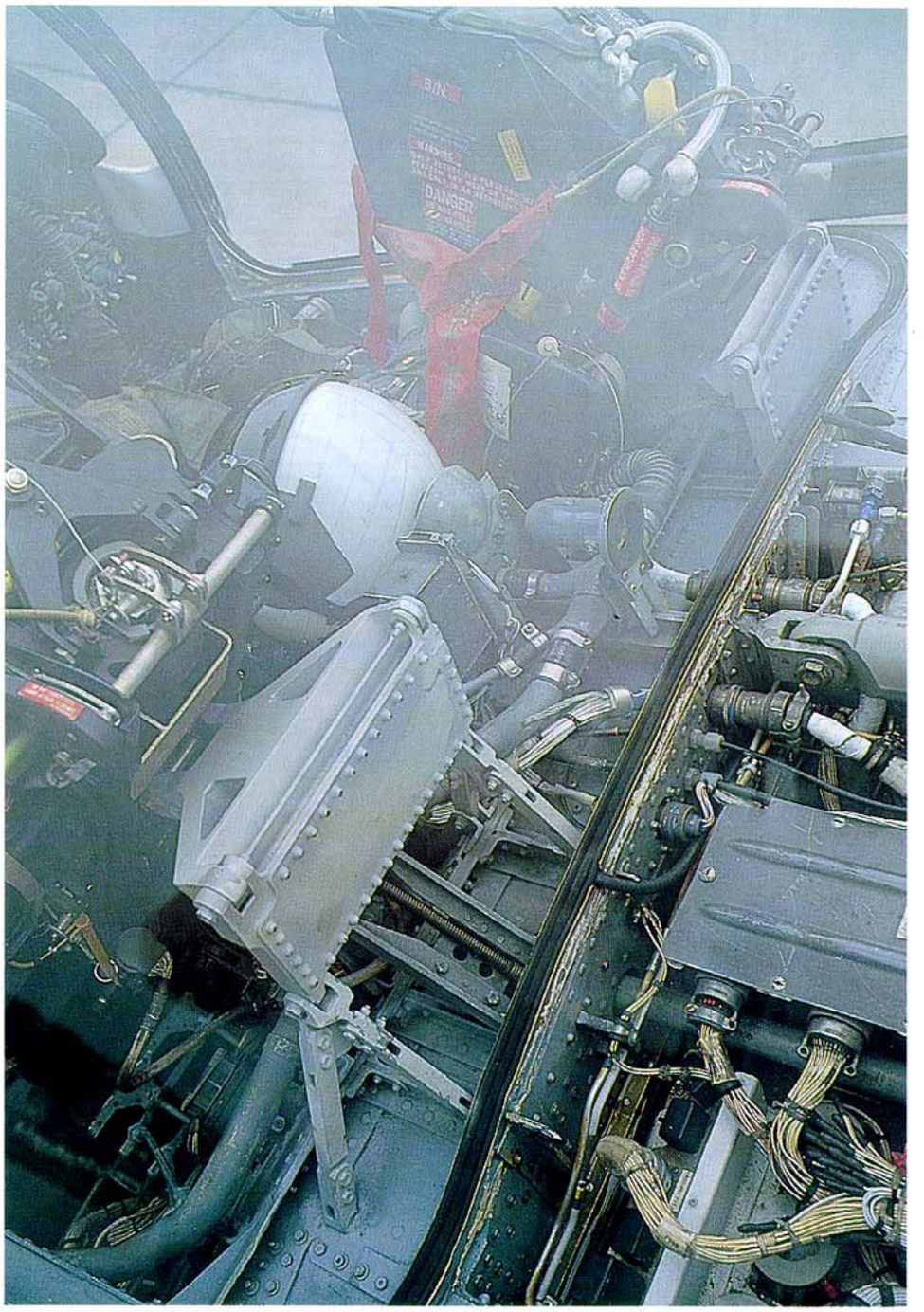


Another area of interest to the modeler is behind the ejection seats where the single canopy actuator, some piping and a lot of electrical wiring is left uncovered. The canopy sliding rails can be seen painted green.

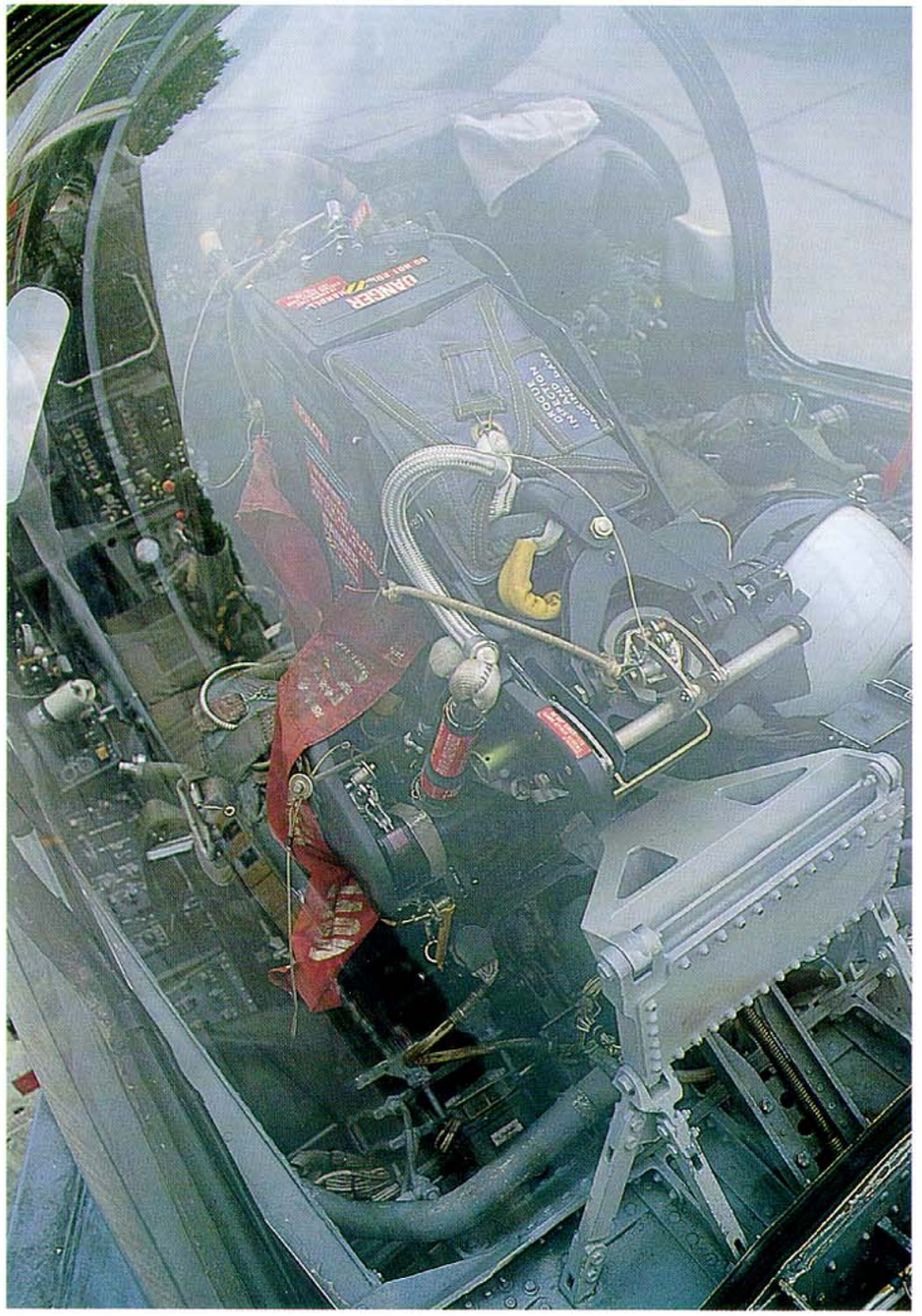




A view on the same area looking forward with detail on the aft cockpit bulkhead revealed. Hosing of the canopy environmental system is running behind the ejection seat headrests. In the bottom left corner of the photo can be seen the mid fuselage fuel tank and fuel pipe.



Clearly visible in this view through the perspex hood is the slightly forward and raised position of the pilot's ejection seat and the different installation of the seat support mainstay. Also clear is the inflatable canopy seal (note both inflation tubes at seat height).



Close-up of the pilot's GREA-7 ejection seat upper detail with both safety pins installed, and the area below and behind the seat. The drogue gun and drogue deployment lanyard are prominent aside the seat headrest. Note the different red warning labels.

An almost similar view on the bombardier/navigator's seat. Note the safety pins are also installed on the left side of the seat headrest, hard to reach from this side of the aircraft. When the ejection handle (face curtain handle at front in the seat headrest or the handle between the crewman's legs) is actuated, the seat is simply blasted through the canopy.

Again the pilot's station, this time viewed from the B/N seat. Clearly visible at the far end is the landing gear actuating handle and the emergency brake selector handle. The protective face cushion over the radar screen is used by Lt John "Frito" FREDAS to stow his oxygen mask.

The EA-6B Prowler was developed as a new EW (Electronic Warfare) aircraft for jamming and deception of enemy radar and communications. The initial proposal was a three-seat aircraft derived from an A-6A Intruder, but the Navy determined a four-crew configuration most suitable. Five new-build follow-on prototype EA-6B airframes were produced as early as 1969 with five pre-production Prowlers to proceed the delivery of 23 'standard' EA-6B's. To accomodate the two extra seats, the fuselage was lengthened by 4ft 6in (1.37m). Progressively, updated versions came available, incorporating improved jamming systems. The 'standard' Prowlers featured the ALQ-99TJS (Tactical Jamming System) and ALQ-92 communications jamming system. The first fleet of these 'standard' EA-6B's went to VAQ-132 'Scorpions', coincidentally the squadron introduced further in the book. So-equipped, they flew ECM support missions for six aircraft carriers in the Gulf of Tonkin and became the first EA-6B squadron in combat.

These aircraft had the Pratt & Whitney J52-P-8A engines replaced with the more powerful and economic J52-P-408. Various update programs followed which will be mentioned later.

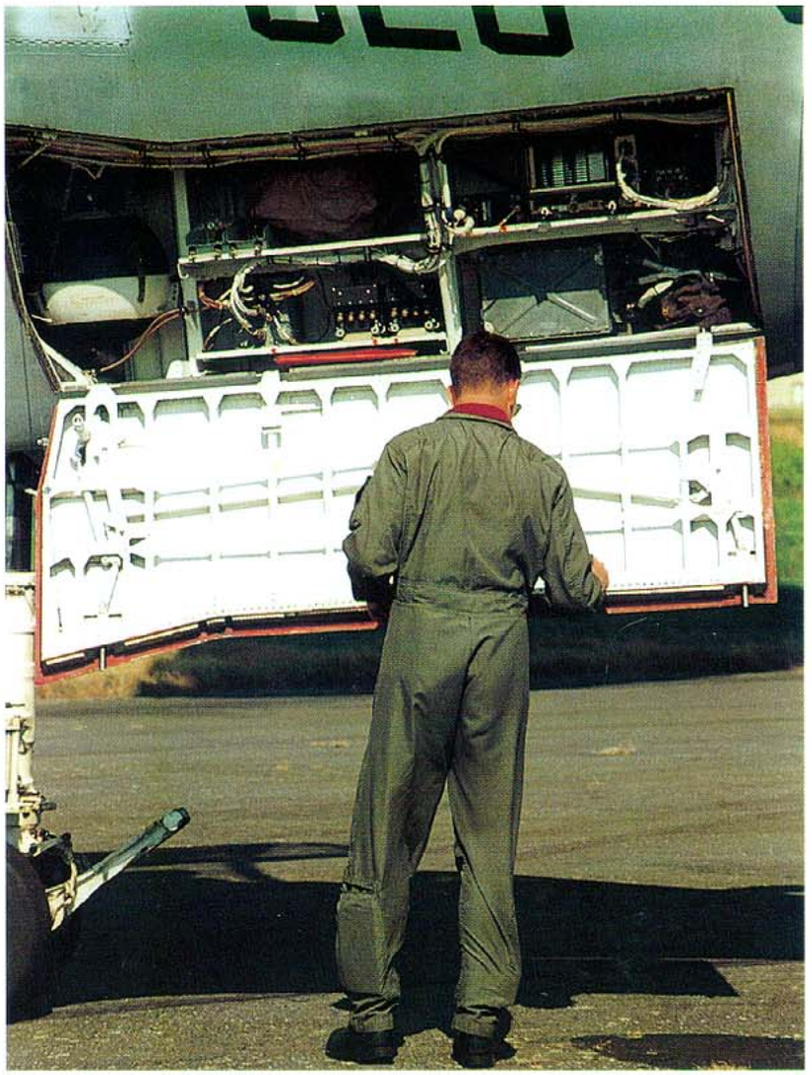
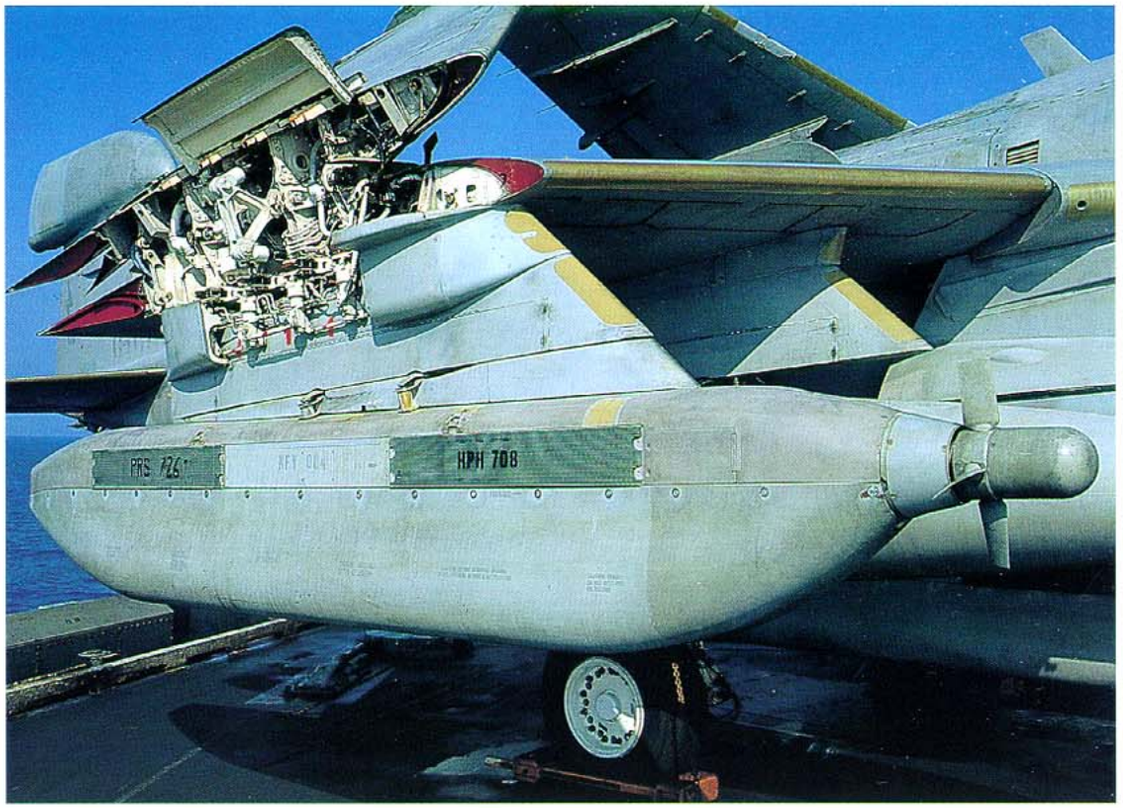
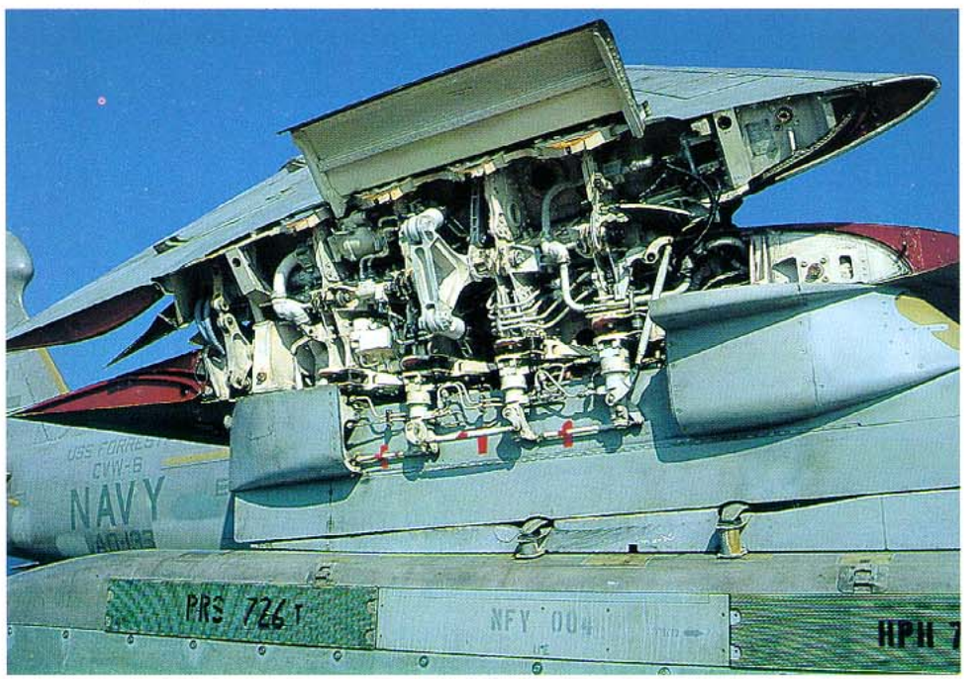
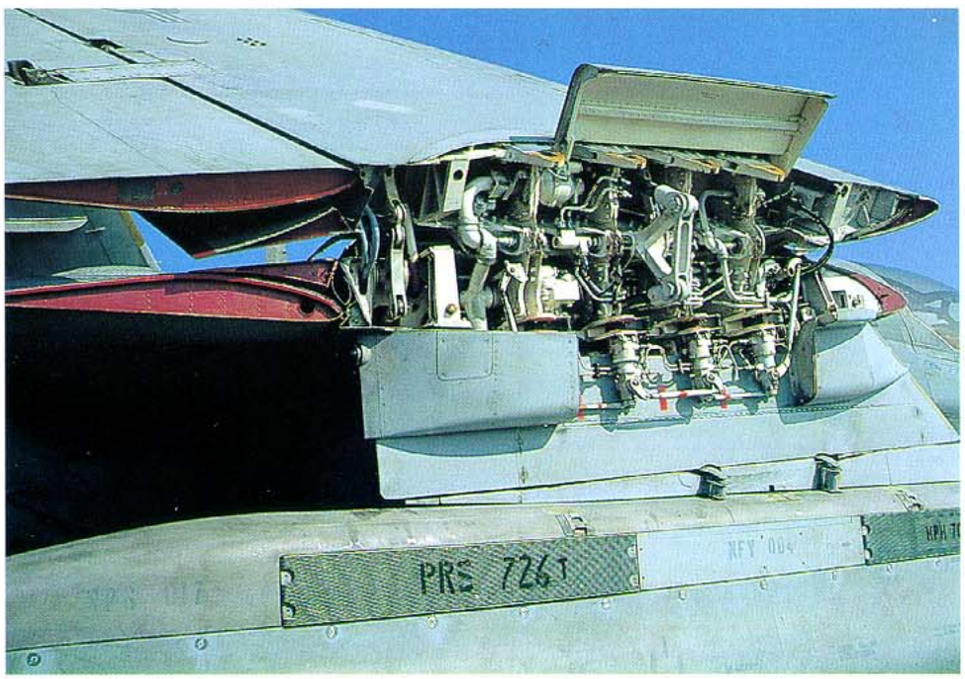


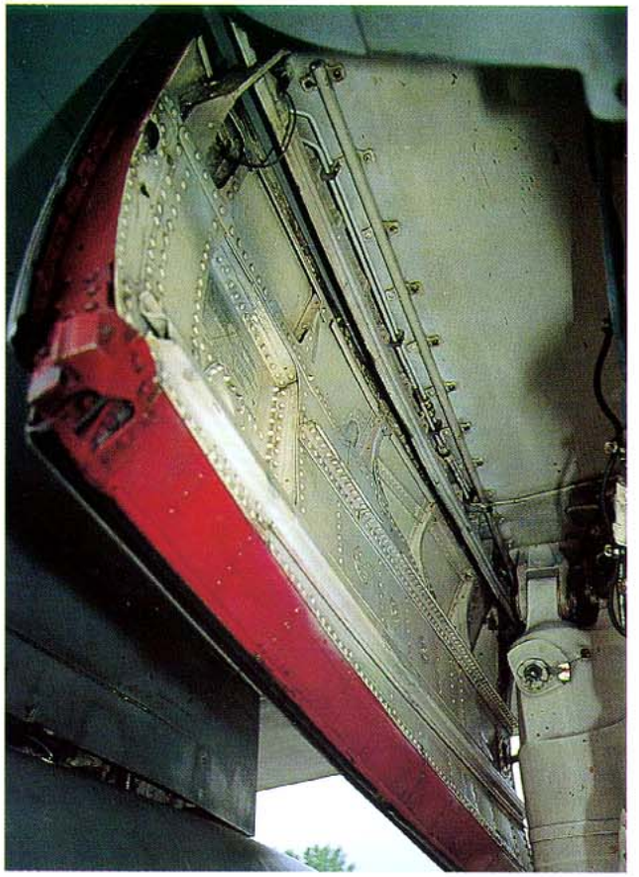
Photo Ronny MEURIS)



(Left) The forward avionics bay on starboard side being inspected by a member of the crew, while on public display at Chievres Airbase, Belgium, 1992.
(Above) The main jamming device for the Prowler is the ALQ-99(V) jamming pod, powered by an external ram air turbine, producing 27kVA at a 220kt minimum airspeed. Note the additional sub-pylon positioning the ram air turbine at a perfect angle to the airstream. Early wing fold mechanism is revealed in both bottom photos.

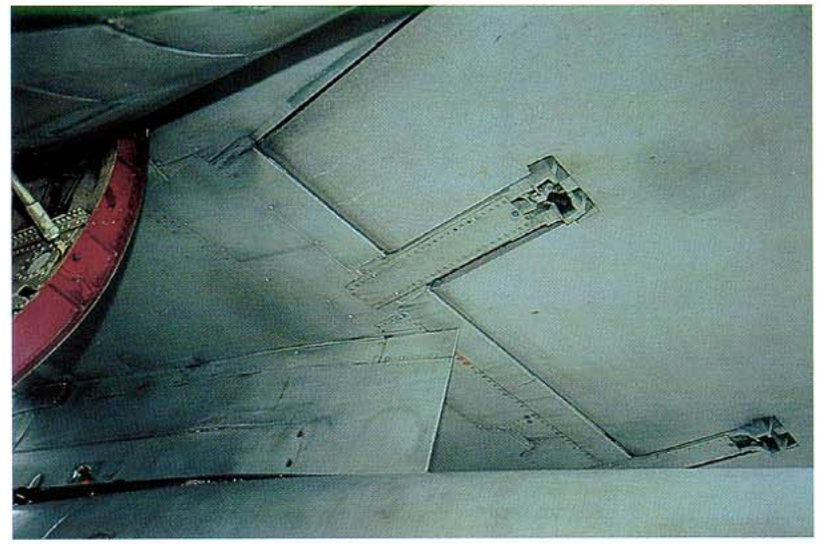






Good overhead view of the Prowler with anti-collision light, AN/ARC-175 VHF antenna, Tacan antenna, ADF aerial on the dorsal spine. Note the use of panels taken from another aircraft, the low-viz light grey walkway panels (heavily weathered by deck crew boots) and the extensively patched-up paintwork on fuselage and wings.
The wing fillet features a radome panel housing the forward ECM transmitting antennas and a leading edge stall warning strip. Note the chromate yellow colored leading edges on wings, pylons and horizontal stabilizers.

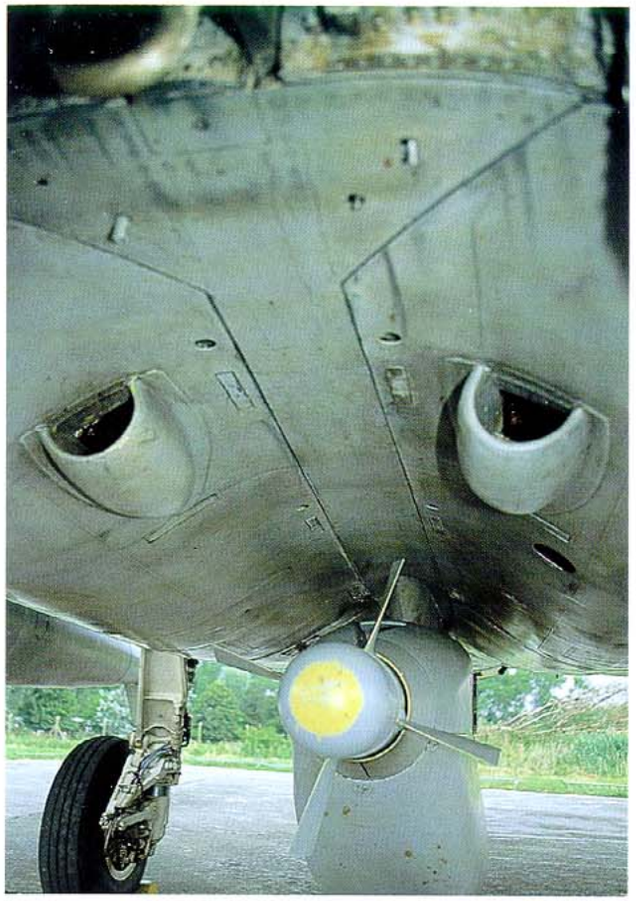
The EA-6B landing gear is strenghtened to accomodate the increased weight of the extended fuselage section, crew seats and updated avionics.



Underwing detail of the trailing edge travel guide, also showing the position of the underwing pylon in regard to the wing trailing edge.

(Top left) The large fin tip radome was first installed on the tail of the EA-6A (two-seat "Prowler") although it did not have the Band 1 and Band 2 transmitting antennas on the side.
The radome itself contains the communications jamming equipment receivers and transmitters with a radar warning antenna installed at the lower trailing end. Note the fuel dump below the rudder and the static discharger at the rudder trailing edge.
Although the radome is a fiberglass container and should therefore not be painted, it did not escape some paint patchwork on the section fasteners.

(Far left) The immense weight of the EA-6B Prowler and its pylon ordnance puts a heavy load on the main gear strut of which the oleo is barely visible. The brake fluid supply lines run all the way across the gear linkage allowing full extension of the oleo prior to landing.
(Left) The heavy disc brake viewed from inside. Note the tie-down ring at the bottom of the strut.



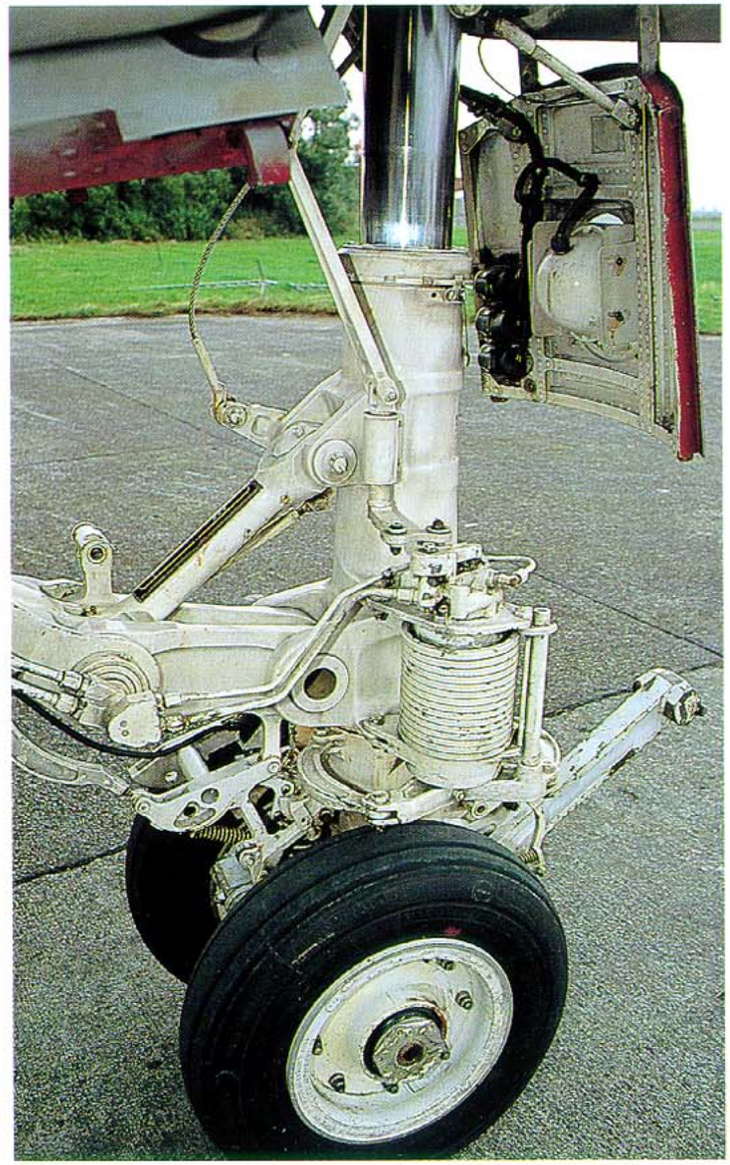
An AN/ALQ-99(V) jamming pod carried on the centerline belly pylon with the rear end of the pod open to allow coolant air to escape (see also top middle photo).
Note the different location of the chaff/flare dispenser cages and blade antenna on the Prowler (top right photo).

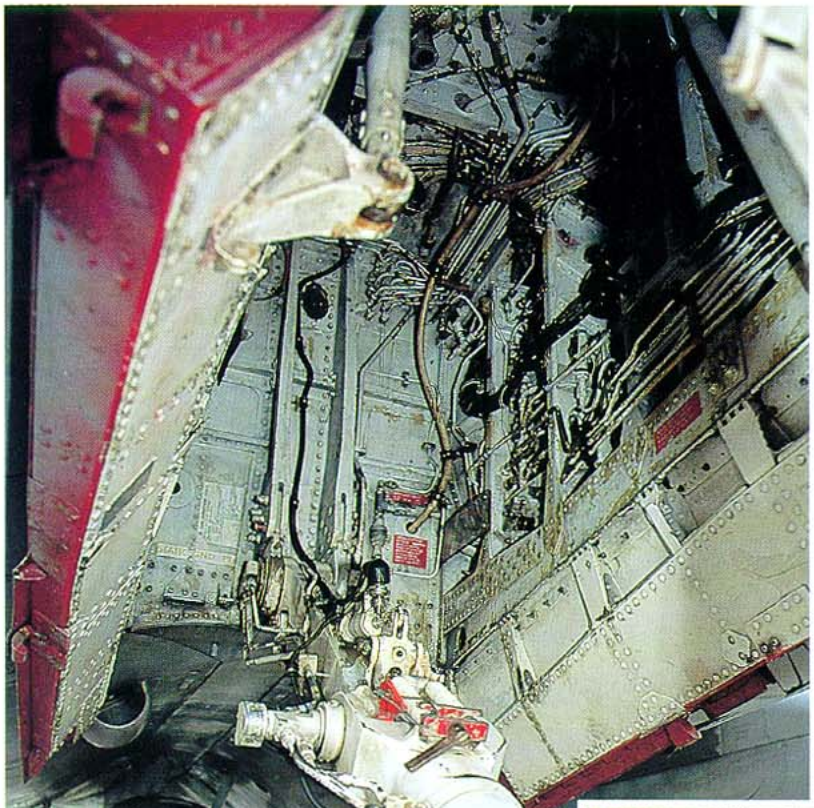
An excellent view on the wing glove main wheel door which is shown closed, as is common on parked aircraft. Note the recess in the bottom wing fillet. Noteworthy at far left are the two small panels being blocked by the retractable boarding step.

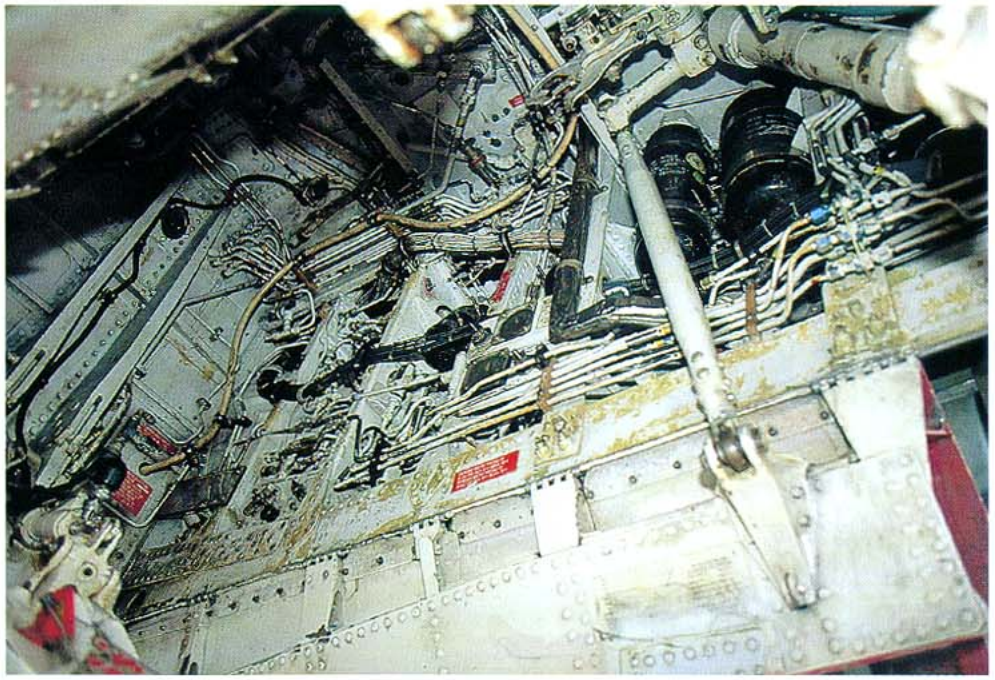
Close-up of the outboard pylon and sub-pylon holding the jamming pod. Barely visible at the bottom of the photo is the jamming pod ID marking, reading CW-1089B/ALQ-99(V).

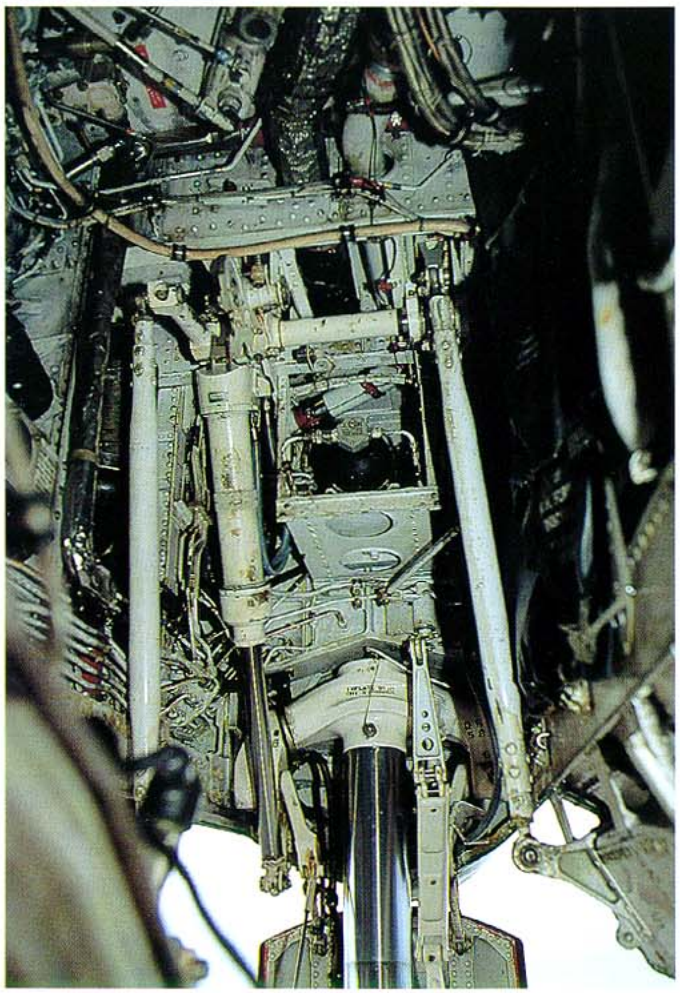
Left an right rear view on the nose gear strut which is similar to the A6-E nose gear. Unlike other aircraft which have the oleo at the bottom of the strut, Intruder and Prowler have the oleo on the top, behind the small gear door. At front is the launch shuttle engaging bar.

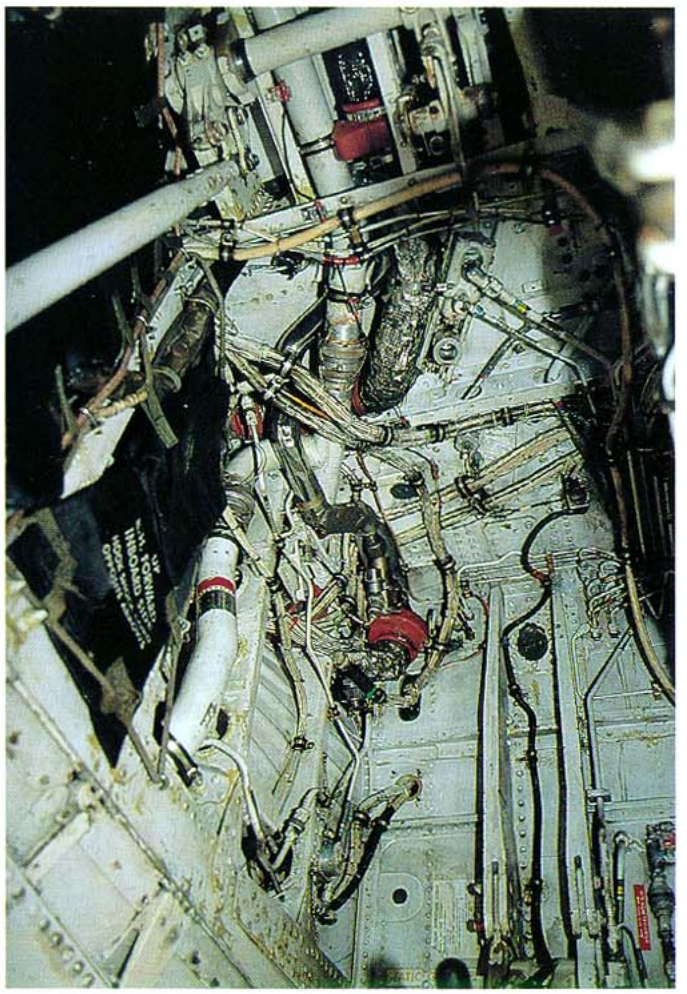
Outer wheel detail with partially faded sticker on the wheel hub, reading "ANTI-SKID GENERATOR". Note the painted markings on the rubber tires.







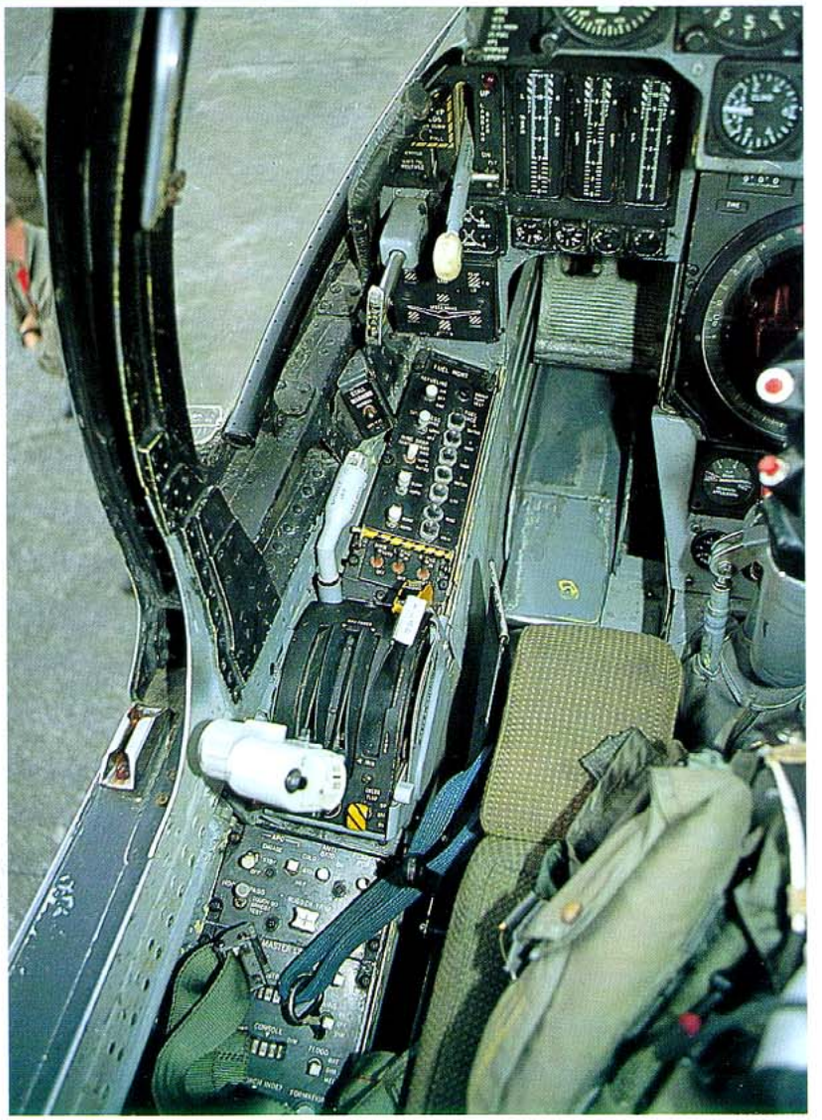




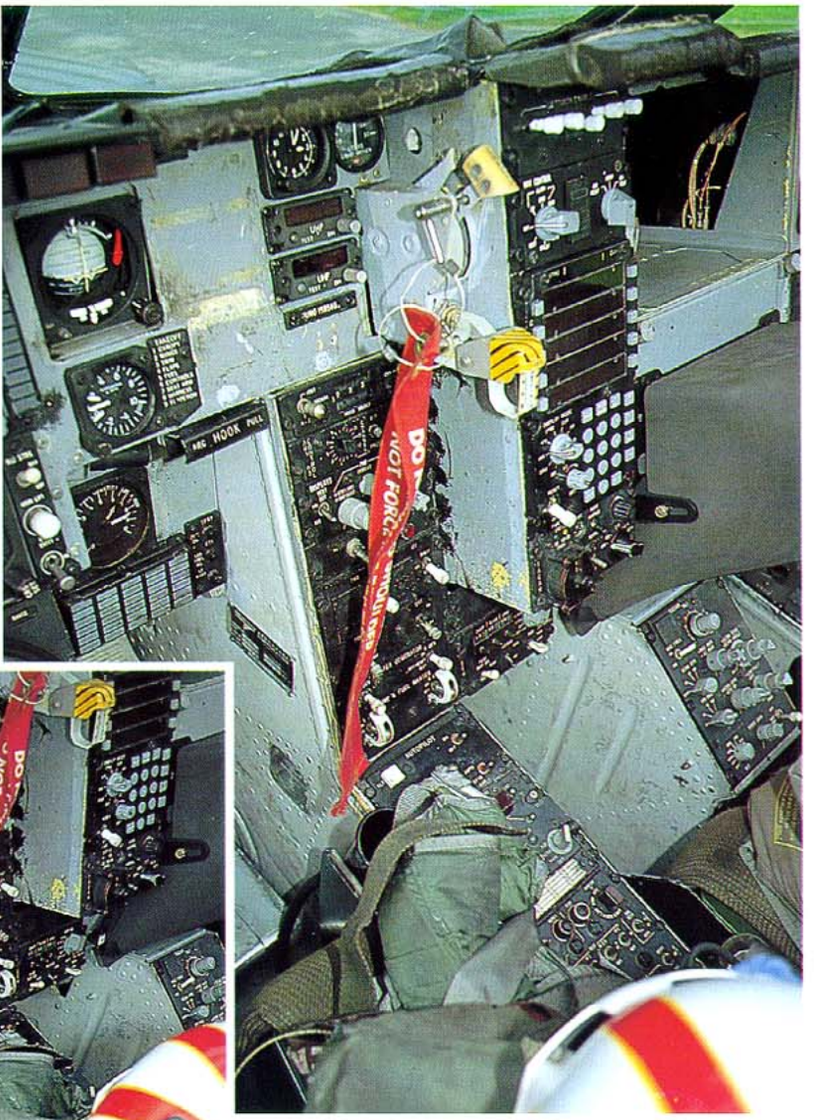
The nose landing gear bay is quite large compared to other aircraft as revealed in the photos on this page. The landing gear doors are mechanically closed when the gear retracts aft and up into the well by two struts.

The stencilling on the upper strut fork in the photo at right reads: Inflate with dry nitrogen. Four 2,450psi bottles, some seen mounted inside a rack above the fork, supply a one-shot pneumatic system to extend the gear in case of total hydraulic failure.

As usual, landing gear bays are used as bypass locations for environmental piping and electrical wiring. Most of the control valves are located here for ease of maintenance. Note the extensive weathering of the bay.



With the first fleet of EA-6B Prowlers in service, several improvement programs followed suit and a new model Prowler, the EXCAP (Expanded Capability) was delivered in the mid-1970's. Its upgraded AN/ALQ-99A EW system permitted jamming of eight frequency bands, rather than four.
Further improvement resulted in the ICAP (Improved Capability) type, referred to as ICAPI, subject of the photos on the following pages.
Main difference lies in the distribution of crew workload. The navigator (ECMO-1) was solely made responsible for the communications jamming, while radar and other jamming functions were relocated to ECMO-2 and ECMO-3. ICAP aircraft also had two Sanders AN/ALQ-126 multiple-band breakers which is indicated by the receiver antennas located in the sawtooth at the leading edge of the refueling probe and the previously mentioned radar warning antenna at the bottom rear of the fin pod.
Few people seem to comprehend the significance of the "radiation" sign on the nose of the Prowler. It simply serves the recognition of the type by the air boss during carrier recoveries, to distinguish the Prowler from the Intruder.

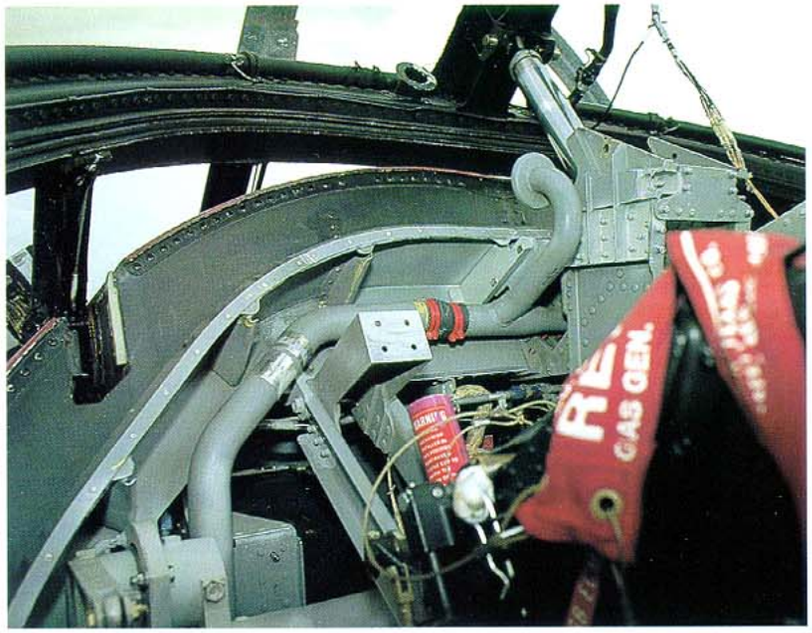


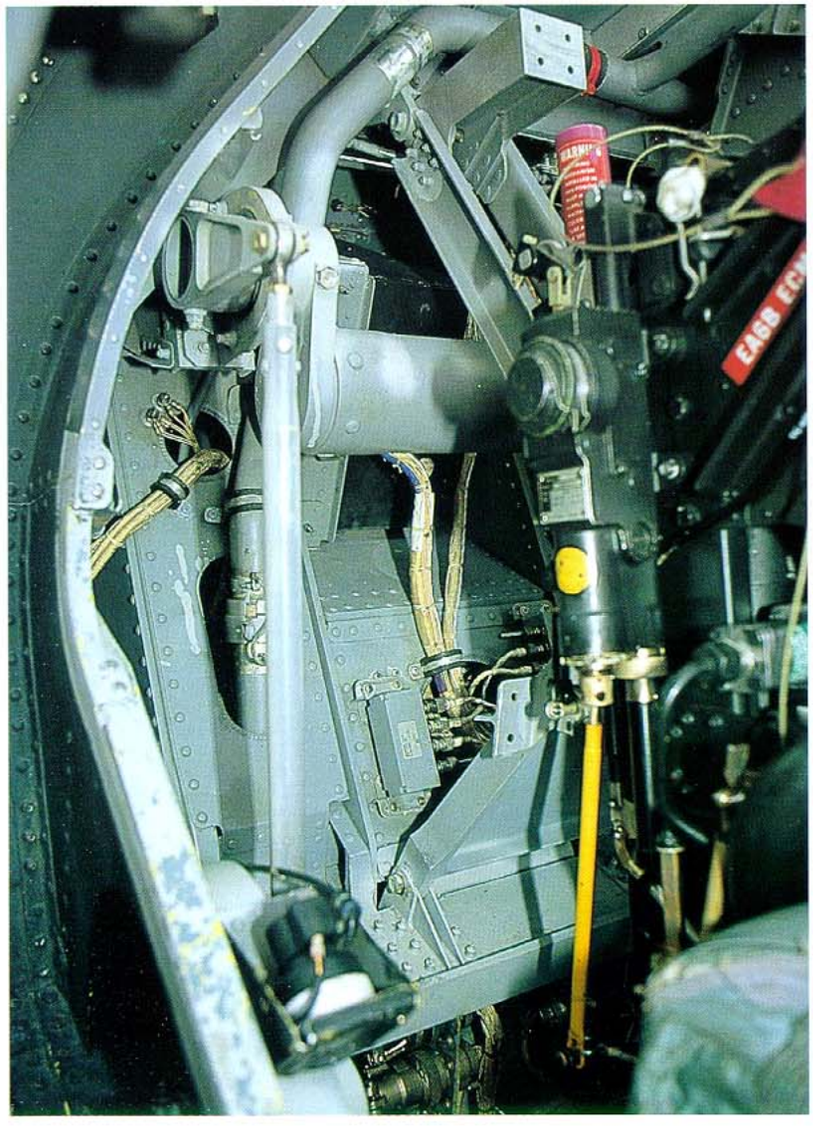
Pilot's station of the EA-6B Prowler (ICAP) differs considerably from that of the Intruder. Most instruments are still of a classical design, including the large radar display behind the control column. Left side console has the fuel management panel located at front, throttle quadrant with catapult grip next, miscellaneous systems control panel(rudder trim, flaperons, anti-skid, arrestor hook select, etc.), master lighting panel and some more.

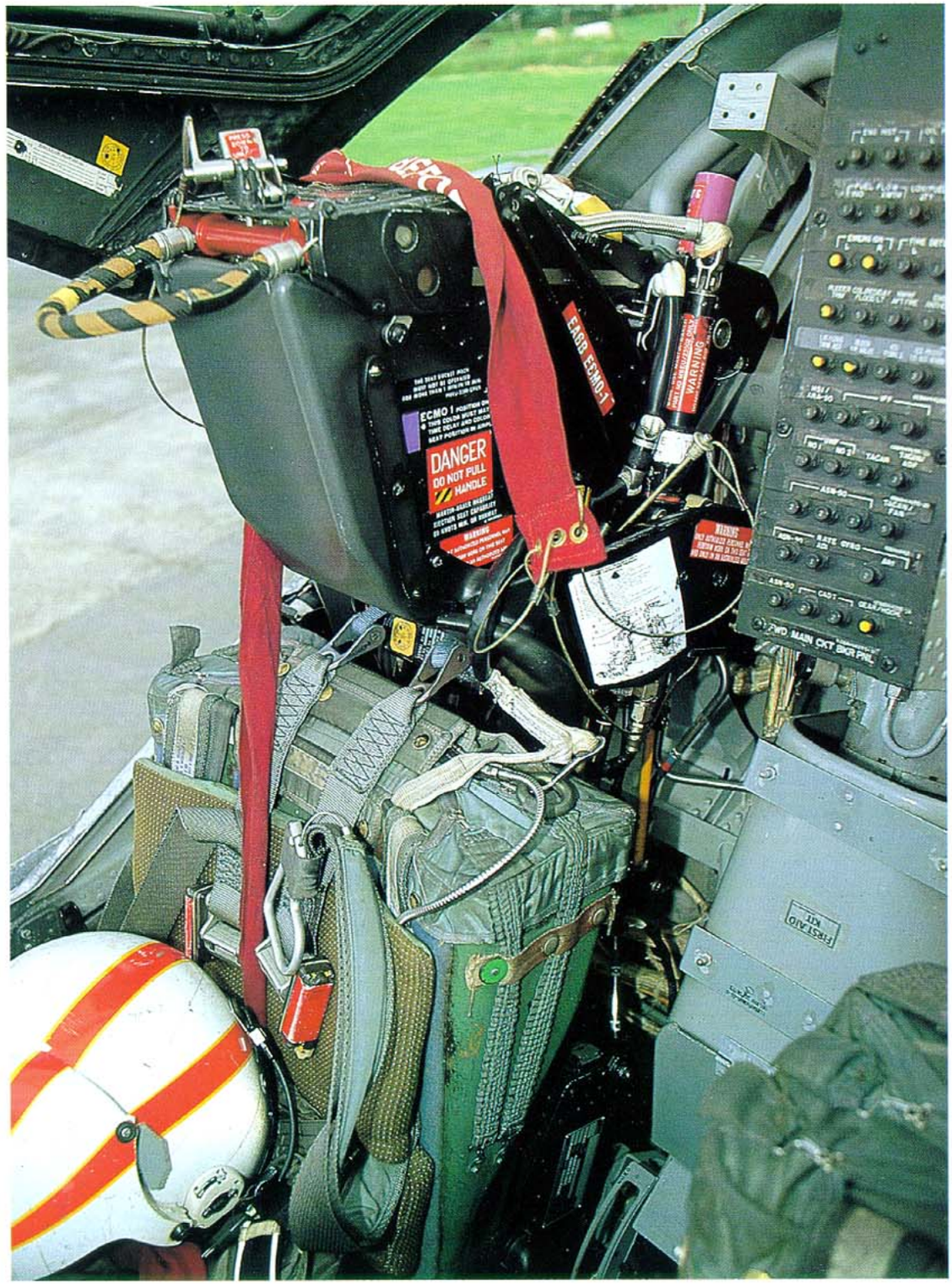
The upright center console holds from top to bottom, ASW-25B control panel, ARA-63 control panel, displays control panel, chaff control panel, DECM control panel and master generator/engine and fuel panel. The autopilot control panel can still be seen behind the pilot's gear.

ECMO-1 (Electronic Counter Measures Officer-1) station at right is dominated by the Direct View Radar scope with face protector and radar control panel immediately below it. The panoramic display panel has been removed leaving an empty rack on top of the radar scope. Equally removed from this aircraft are the ALQ-92 frequency monitoring and control panels.
Below this empty rack is the forward right pedestal circuit breaker panel(left) and the AN/ALE-39 control panel.

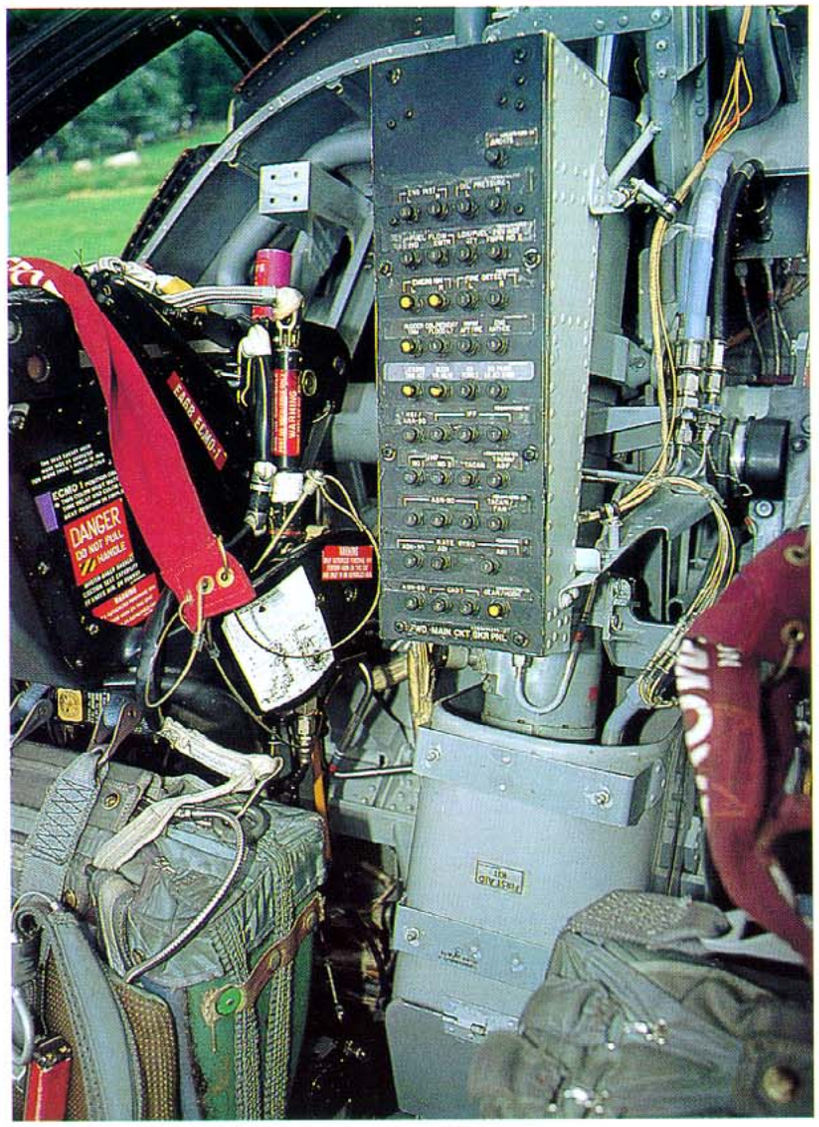
Indicating a probable update to ICAPI(Mod) standards, this Prowler features a HARM selector panel on the front right console. The large black handle next to the seat is the radar slew handle with most of the radio control panels located more aft.
Note the absence of rudder pedals in the ECMO-1 station, replaced by a footrest with foot switch.
The photo above focusses on the canopy locking mechanism on the canopy sill, aft of the seat.

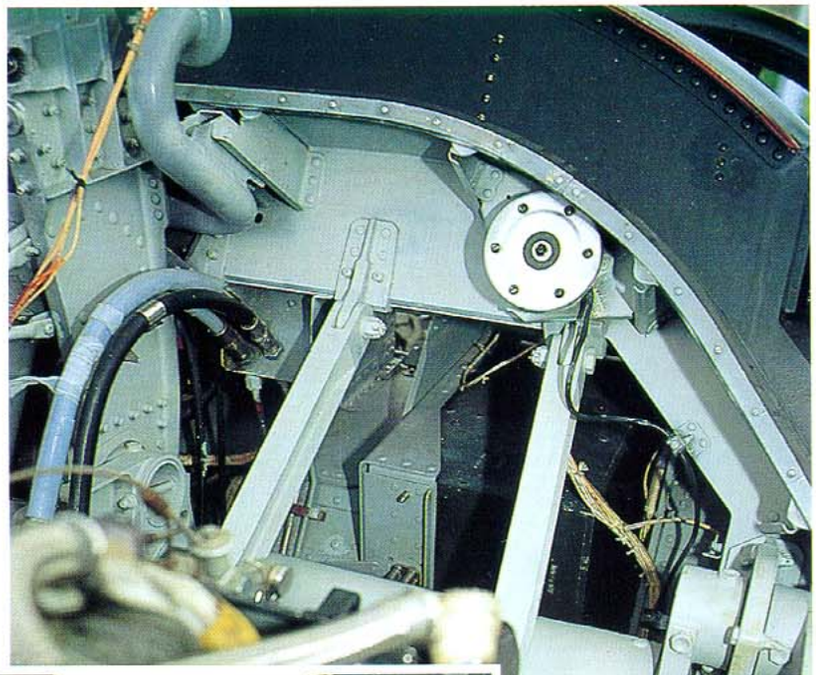






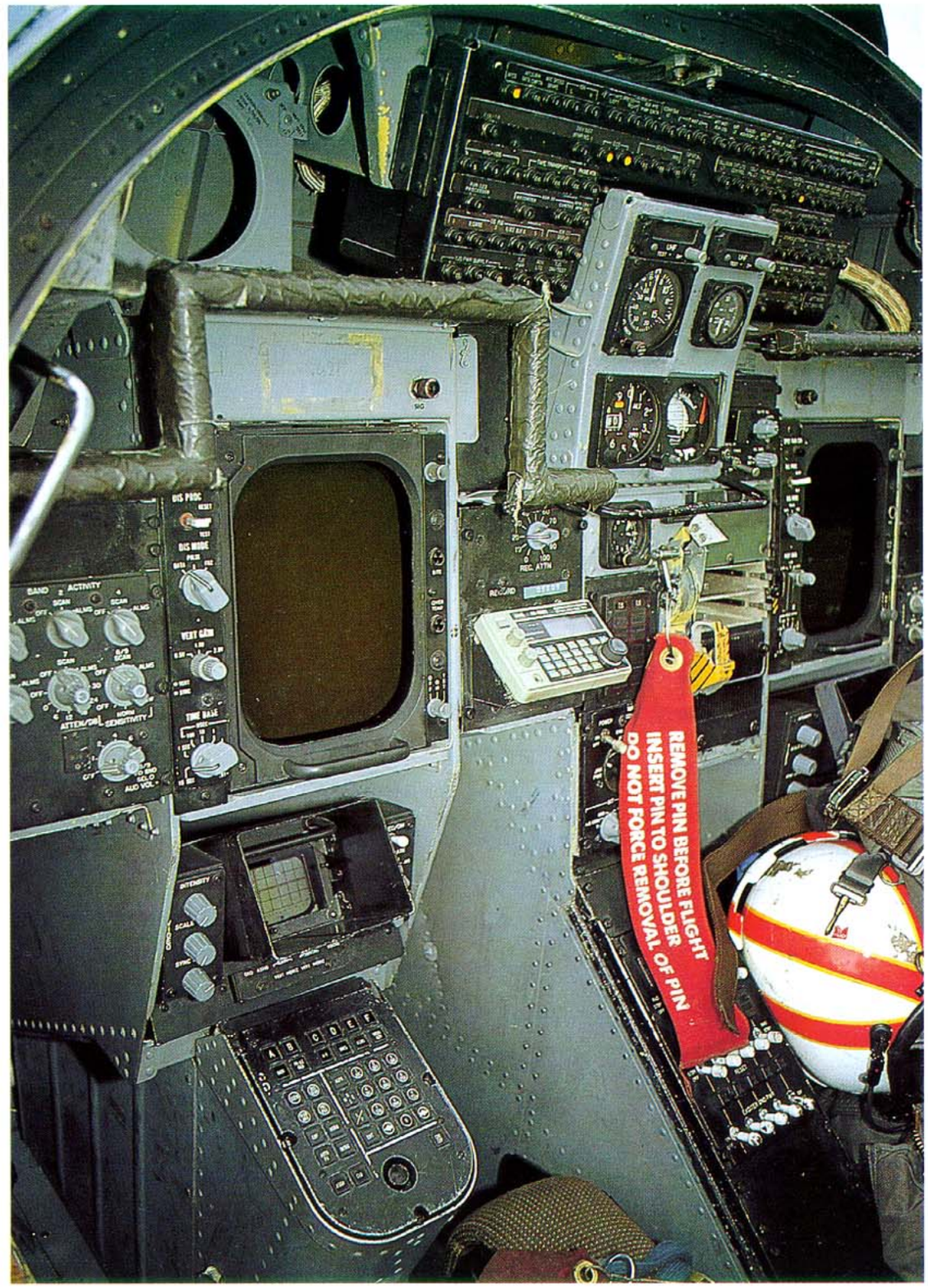
Behind the seat detail with single canopy actuator rod and canopy defogging pipelines running about. Note the canopy hinges and fuselage cover plates extended in the top left picture.
Also important is that every individual seat is labelled with its respective position within the aircraft. Mixing them probably results in malfunction. The seat is the Martin Baker GREA7 as indicated below the red "DANGER" label.



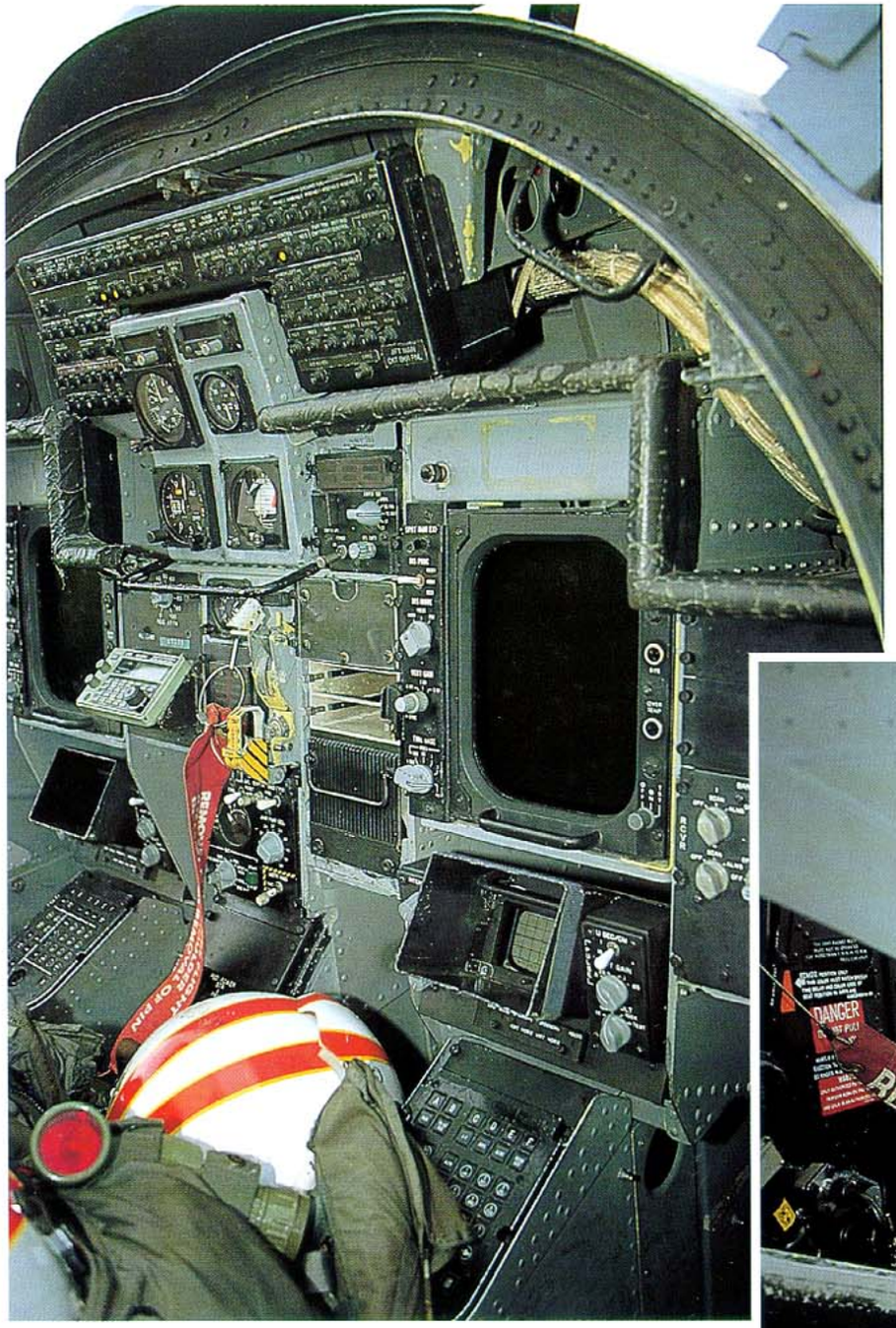


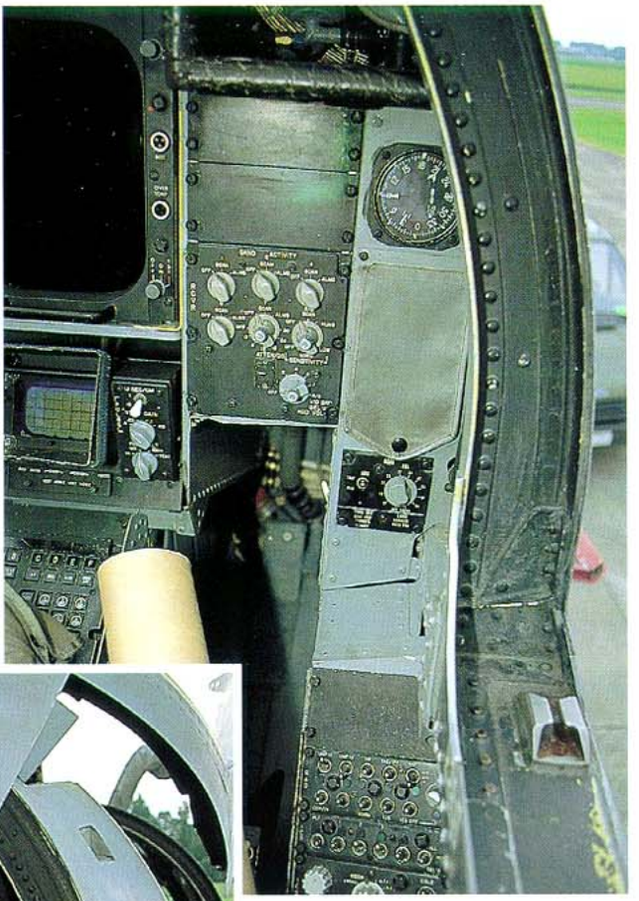
The upright console between the seats is used to store the forward main circuit breaker panel with a first aid kit container below.
Note that the canopy defogging pipe does not run behind the pilot's seat but stops at the port side canopy hook-up. One can spot the rear of the ECMO-3 instruments in the distance.

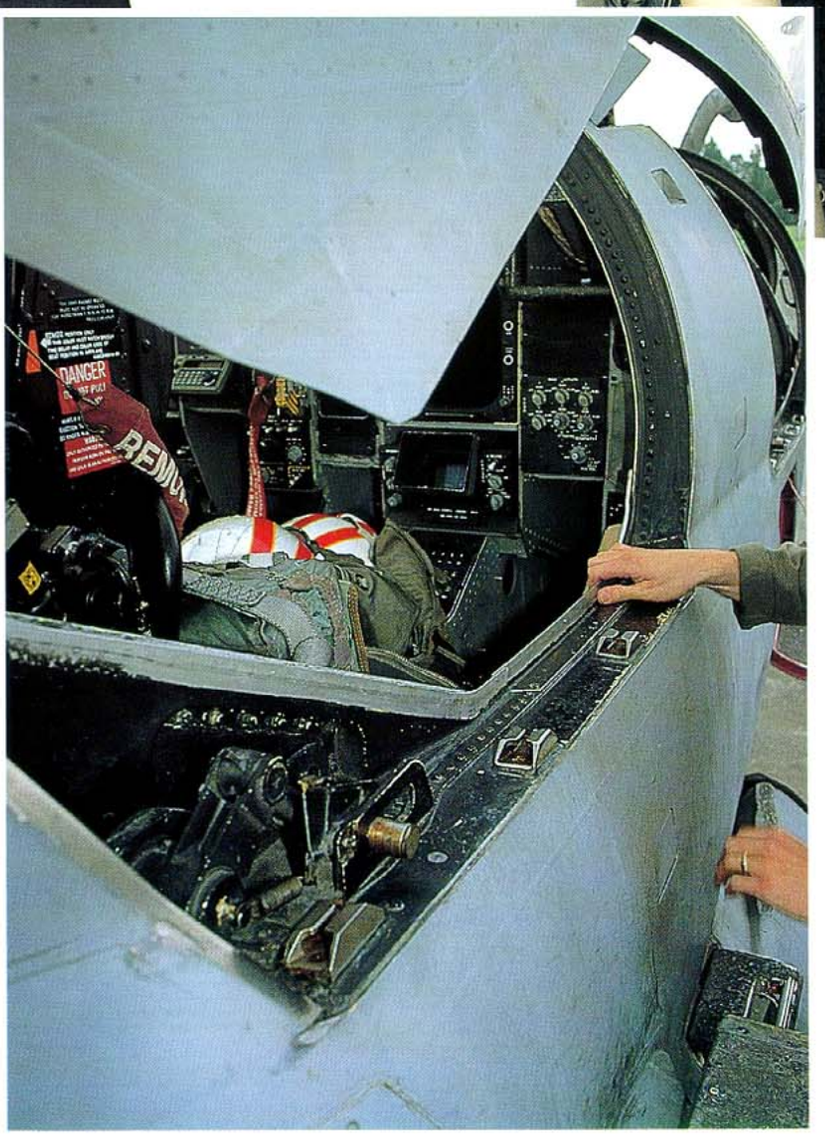
ECMO-3 is seated on the port side in the aft cockpit. His side console is mainly taken by an interior lighting panel and ICS control panels. The yellow/black caution label at front warns the occupant that the zero time delay seat installed in this station allows no time for shoulder retraction for take-off and landing and critical flight phases. He is advised to erect, shoulders back, harness snug and locked.
Bearing distance heading indicator and control panel can be seen at left with the TJS receiver control panel positioned at right of these.



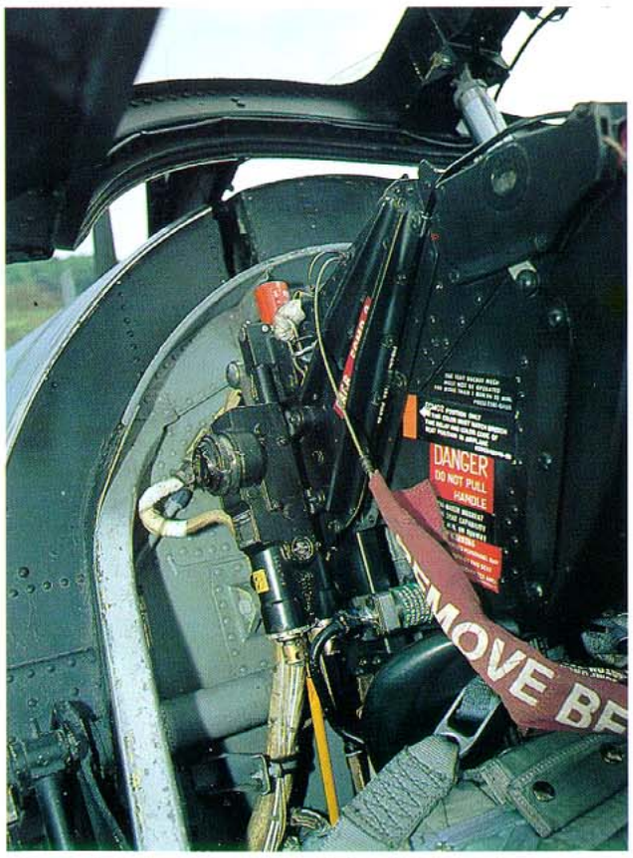
ECMO-3 main panel and console. The large scope is the digital display indicator with a small video display unit located immediately below. The console holds the digital display indicators. Note the small calculator-like communications device at right of the display.



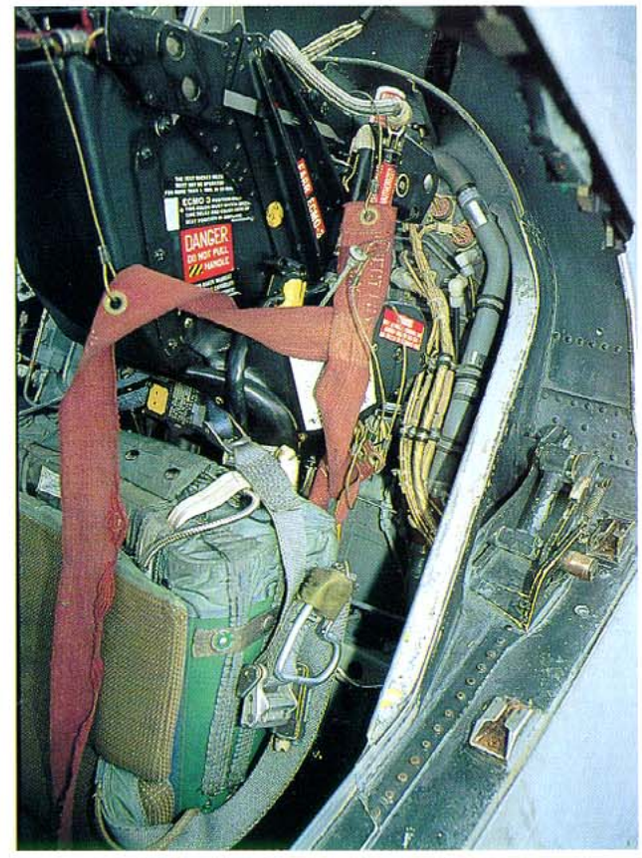




ECMO-2 station with similar instrument layout in slightly different locations. Mounted overhead the rear cockpit main panel is the aft main cockpit circuit breaker panel. Note few indicative flight instruments present in the aft cockpit.
At right is the slightly different locking device of the aft canopies.



Rear seat configuration and canopy actuator detail. Each ejection seat carries a different color label on the headrest which matches the breech time delay and color code of the seat position in the aeroplane. All crew members except the pilot may eject individually or the pilot can initiate a command sequence that ejects ECMO-3, ECMO-2, ECMO-1 and himself at 0.4 second time intervals. The pilot's seat is adjustable for tilt as well as height, the three other seats for height only.



(Photo by Maj. Jim ROTRAMEL)

A6-E 152930/AA500 of Va-155 "SILVER FOXES", USS SARATOGA, photographed at NAS Oceana while participating in exercise Cannon for Pecos / Thunder 89-1.