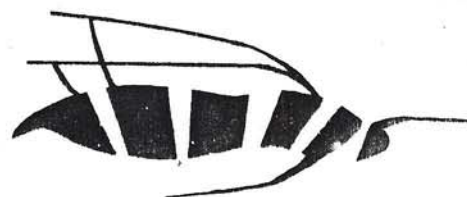


F-18 HORNET

by: Ed Yarbrough



Flight testing of the McDonnell Douglas F-18 Hornet has begun in earnest in St. Louis and at the US Navy's Naval Air Test Center (NATC) at Patuxent River, Maryland.

Already, interest in this hot little fighter is high among aviation enthusiasts and modelers. ESCI/Scalecraft Models is on the verge of a 1/48th scale F-18 release, soon to be followed by a Hasegawa/Minicraft 1/32nd Hornet! Entex is planning a 1/72nd release.

In this article, I hope to give you an idea of what is happening in the Full Scale Development (FSD) program, show some of the colorful markings on the FSD Hornets, and recommend some excellent articles for pictures and general information.

Flight Test Program — Eleven FSD F-18's are to be delivered to NATC by the end of this year, and will be involved in four years of intensive flight testing. Currently, 3,257 test flights are planned. The eleven Hornets, their McDonnell Douglas production numbers, Navy Bureau of Aeronautics serial numbers, and their assigned flight test duties are listed below:

Hornet Production Number	Bu. Aer. No.	Flight test Duty
1(F1)	160775	Flying Qualities, Flutter
2(F2)	160776	Propulsion, Performance
3(F3)	160777	Carrier Suitability, Environmental Control System
4(F4)	160778	Structural
5(F5)	160779	Avionics
6(F6)	160780	High Angle of Attack (Spin Test)
7(TF1)	160781	Armament, Systems
8(F7)	160782	Armament, Systems
9(F8)	160783	Performance, Systems
10(TF2)	160784	Engine Accelerated Service Test
11(F9)	160785	Reliability

The 7th and 10th Hornets are the first two TF-18A's, two place versions of the normal single seat aircraft.

Three F-18's are currently flying — F1, F2, and F3. F1 and F2 are at NATC, and F3 is at St. Louis. Together, they have flown more than 70 flights, and have amassed over 100 flight hours. Hornets have flown as fast as 1.7 times the speed of sound, and have flown at 45,000 feet. They have maneuvered at up to 5 g's.

First Flight — The first flight of the first FSD Hornet occurred on Nov. 18, 1978, about two months after its colorful rollout ceremonies on September 13, 1978. I had a chance to see the first flight, and it was quite an experience. Early in the morning of November 18th, two NATC based McDonnell Douglas KA-3 Skywarriors took off from Lambert-St. Louis International Airport and headed to the test site near Springfield, Illinois. They served as observers, and could "top off" the F-18 should any problems occur. Next was McDonnell Douglas' premier chase and photo aircraft — F-15B #2 (USAF Ser. No. 71-0291), still painted in its striking red, white, and blue, "Bicentennial" markings. It did a near-vertical, ear-shattering climb known at McDonnell as the "Viking Departure". Within seconds, it was orbiting the airport at about 5,000 feet. A short time later, the F-18 rolled from the hangar with Chief Test Pilot Jack Krings in charge, followed closely by another chase plane — F-15A #4 (USAF Ser. No. 71-0283), painted in brilliant white and international orange markings. The crowd at the public viewing area was very large, and the typical assortment of high power

display of expert close formation flying and raw power. Two Eagles and a Hornet. It was awesome. Fifty minutes later it was all over. As Hornet #1 touched down, both Eagles made spectacular Viking climbs, as if in celebration of the successful first flight. On that day, Hornet #1 flew to only 23,000 feet and barely reached 300 knots. But it flew. And now its all business — getting the latest Navy fighter into operational service. Hornet #1 left St. Louis on January 16, 1979, again accompanied by F-15B #2, and ferried to NATC, where it is now based.

Markings — Figures A, B, and C show F-18A #1 in its special Navy color scheme. The aircraft is overall gloss white, with special dark blue (similar to FS 15042) and gold trim. Figure A shows two types of markings which have been applied to F-18 #1. The upper drawing shows how it looked on September 13, 1978 for the rollout ceremonies. Only the yellow rescue markings on the nose were added for the first flight. The yellow danger placard beside the canopy (both sides), the blue "1" on the nose and tail, and the cross-hatched yellow boarding ladder markings were added at NATC, as shown in the lower figure. The fairing covering the boarding ladder can be seen on Figure C underneath the left Leading Edge Extension (LEX) near the canopy.

All lettering (i.e., "Hornet", "Navy/Marines", "McDonnell Douglas" logo on the tail, and the serial block number) are the same dark blue as the trim. The Hornet logo is also dark blue. The "F-18A" letters in the serial number block are 3.75 inches high and "160775" is 4.5 inches high. The "McDonnell Douglas" logo letters are about 3.75 inches high. The "Navy/Marines" and "Hornet" letters are all 12 inches high.

The national insignia (stars and bars) on the fuselage and wings are standard red, white, and blue. The fuselage insignia are 15 inches in diameter. The wing insignia are 20 inches in diameter. (See Figures A and B.)

The anti-glare panel is dark blue, and has a notch cut out of it on the forward right hand side. (See Figure B)

binoculars and fancy cameras which you see at airshows was beyond belief. While F-15B #2 orbited overhead, F-18A #1 and F-15A #4 sat in the penalty box at the far end of the runway waiting for the airliners to clear out. Suddenly, F-15B #2 headed for the runway, as Hornet #1 and Eagle #4 taxied on to the active. The Hornet began its takeoff roll, as F-15B #2 closed rapidly. As the Hornet became airborne, Eagle #4 started its takeoff run. The entire trio passed directly overhead in an incredible

The triangular engine intake danger markings are gloss red with white lettering — "JET" on the top stripe, "INTAKE" on the bottom stripe. Centered between the stripes is lettered "DANGER" with an arrow pointing to the intake. These markings are gloss red. All letters are 2 inches high. The apex of the markings extends 32 inches from the leading edge of the boundary layer splitter plate. The stripes are 3 inches wide. The angle between the stripes is 38°. (See Figure A.)

The natural metal areas on the aircraft are sparse. The nozzles are, of course, burnt metal color. The grilles on both top and bottom of the aft fuselage upstream of the nozzles. Also bare metal are the pitot probes on the lower forward fuselage near the nose, the angle of attack indicators, and the forward portion of the test pitot boom.

The AIM-7F Sparrow and AIM-9L Sidewinder missiles are all dummies, and are painted gloss white overall. Hornet #1 has flown often without the bottom fins of the Sparrows.

The second and third F-18's are shown on Figures D, E, and F. They are painted in the standard FSD color scheme. The scheme is overall gloss white, with dark blue panels covering selected portions of the aircraft to enhance visibility during flight tests.

F-18A #2 is the Propulsion system test bird, and has extensive engine and inlet instrumentation, in addition to its complement of special FSD gear. F2 first flew on March 12, 1979, and is currently flying at NATC. Hornet #2 has a pitot test boom like Hornet #1. F2 differs externally from F1. Sets of formation lights have been added to the wing tips (Figure E) and to the vertical stabilizer, nose, and aft fuselage (Figure D). The wing tip lights are merely vertical slits in the wing tip "bullet" extending forward of the leading edge of the wing.

The dark blue panels have 0.75 inch wide accent lines separated by 2 inch wide

white stripes. The accent lines are dark blue, also. The "Navy/Marines" markings are identical in size and color to those on F1, but are located on the aft fuselage instead of the forward fuselage. (Figure D) The serial number block has the same size letters as F1, but the letters are gloss black, and are located underneath the horizontal stabilizers.

The "2" markings on either side of the nose are colored dark blue, and the "2" markings on the vertical tails (note that there are four applications) are gloss white. The national insignia on F2 are identical in size and color to those on F1, but are surrounded by 1 inch wide borders where they cover dark blue panels. A 1 inch border stripe separates the jet intake danger markings from the blue panel on the LEX's and center lower fuselage. The anti-glare panel is flat black.

F-18 #3 (Figure D, and insets in Figures E and F) is the Carrier Suitability trials aircraft. It will also test the Environmental Control System for Hornets. It first flew on April 6, 1979. The test pitot boom is not carried by this aircraft, because the boom would interfere with deck handling operations, and cannot take the jarring effects of carrier takeoffs and landings. The markings for F3 are identical to those of F2, with a few minor differences. All "2" markings, of course, are replaced by "3" markings. The nose has a small patch of Gloss Gull Gray (the production color for Hornets). More formation lights have been added to F3. Two have been added to the upper LEX surfaces near the wing leading edge (Figure E) and two have been added underneath the wing in the aileron hinge fairings (Figure F).

All other FSD Hornets will be painted like F2 and F3, with some local differences, except for TF1 and F6, which will be painted in yet undisclosed schemes. Detailed drawings of all FSD Hornets will appear in this magazine as they become available.

Recommended Reading — Already, quite a number of articles have been written about the F-18. Clearly, the best is found in Ref. (3d). This article is extremely comprehensive, and includes some fine cut-away drawings. If your local library has *Flight International*, by all means get a copy of that article. Both issues of Ref. (2) are a little easier to get, and may still be on bookshelves in some places. Ref. (4), regarded as the voice of the aerospace industry, always has good articles and pictures, but unless you've got a subscription, you'll have to consult your library again for copies of these articles. Ref. (4a) has a good technical description of the Hornet, and Ref. (4c) describes more of the Hornet #1 first flight. Refs. (5) and (6) are fairly obscure publications, and are generally more complicated technically. Ref. (7) has terrific color and black and white closeup details of the first Hornet during rollout ceremonies — much better than anything domestically published. But unless your hobby shop carries *Koku-Fan*, you'll have to order a copy from one of the more exclusive West Coast hobby shops.

References

1. Various McDonnell Douglas documents.
2. *Air Combat*
 - a. March, 1979; pp. 12-17
 - b. July, 1979; pp. 4-5, 82
3. *Flight International*
 - a. August 21, 1975; pp. 259-263
 - b. September 23, 1978; p. 1146
 - c. September 30, 1978; p. 1232
 - d. December 2, 1978; pp. 2021-2036
4. *Aviation Week*
 - a. September 5, 1977; pp. 38-43
 - b. September 25, 1978; cover
 - c. November 27, 1978; pp. 19-20
 - d. December 11, 1978; cover
5. *International Defense Review*; February, 1978; pp. 164-168
6. *Interavia*; July, 1978; pp. 605-610
7. *Koku-Fan*; No. 12, 1978; pp. 7-11, 39-44

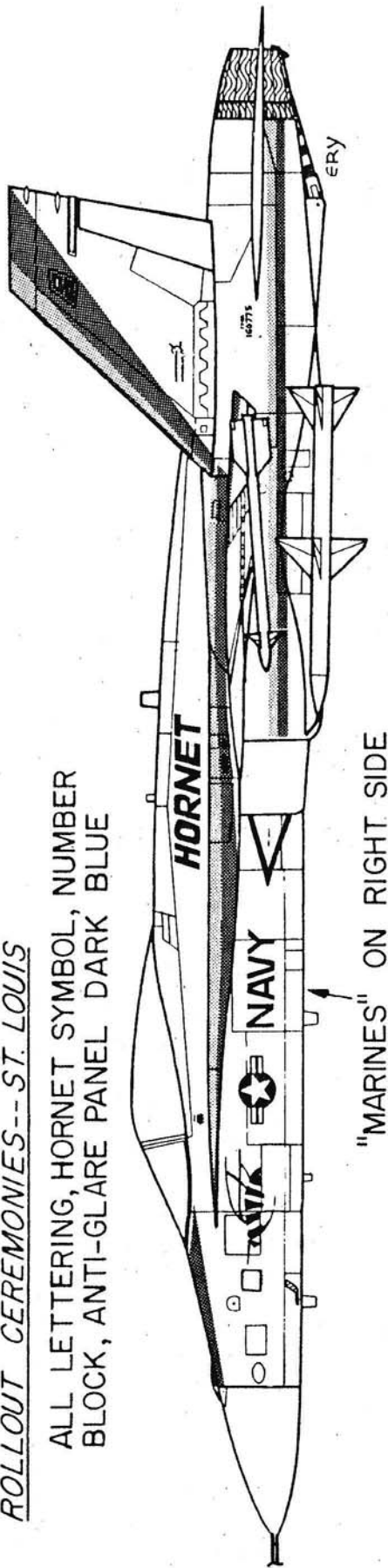


HORNET ONE

BU. AER. NO. 160775

ROLLOUT CEREMONIES--ST. LOUIS

ALL LETTERING, HORNET SYMBOL, NUMBER
BLOCK, ANTI-GLARE PANEL DARK BLUE



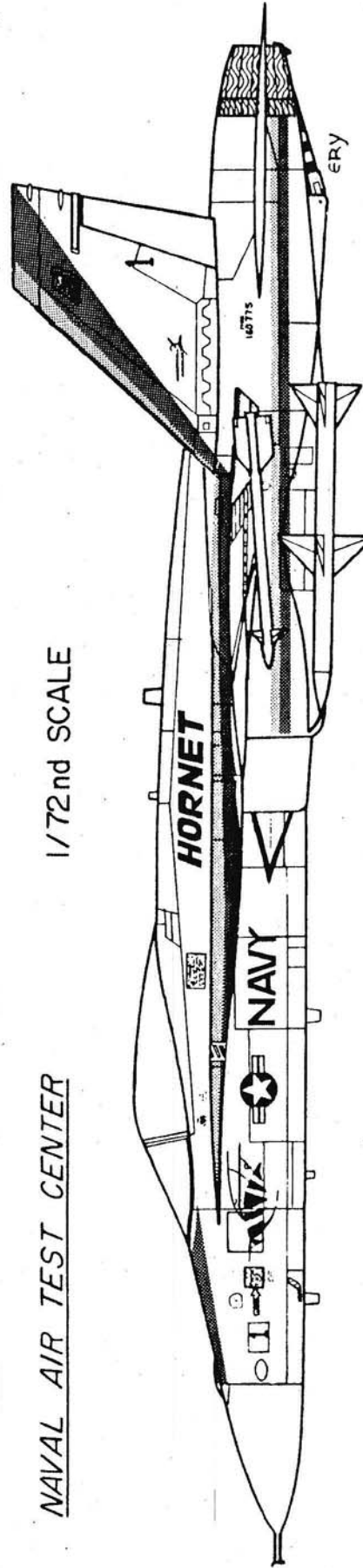
"MARINES" ON RIGHT SIDE

A

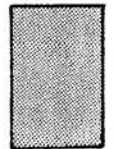
TEST PITOT BOOM

NAVAL AIR TEST CENTER

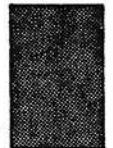
1/72nd SCALE



WHITE



GOLD



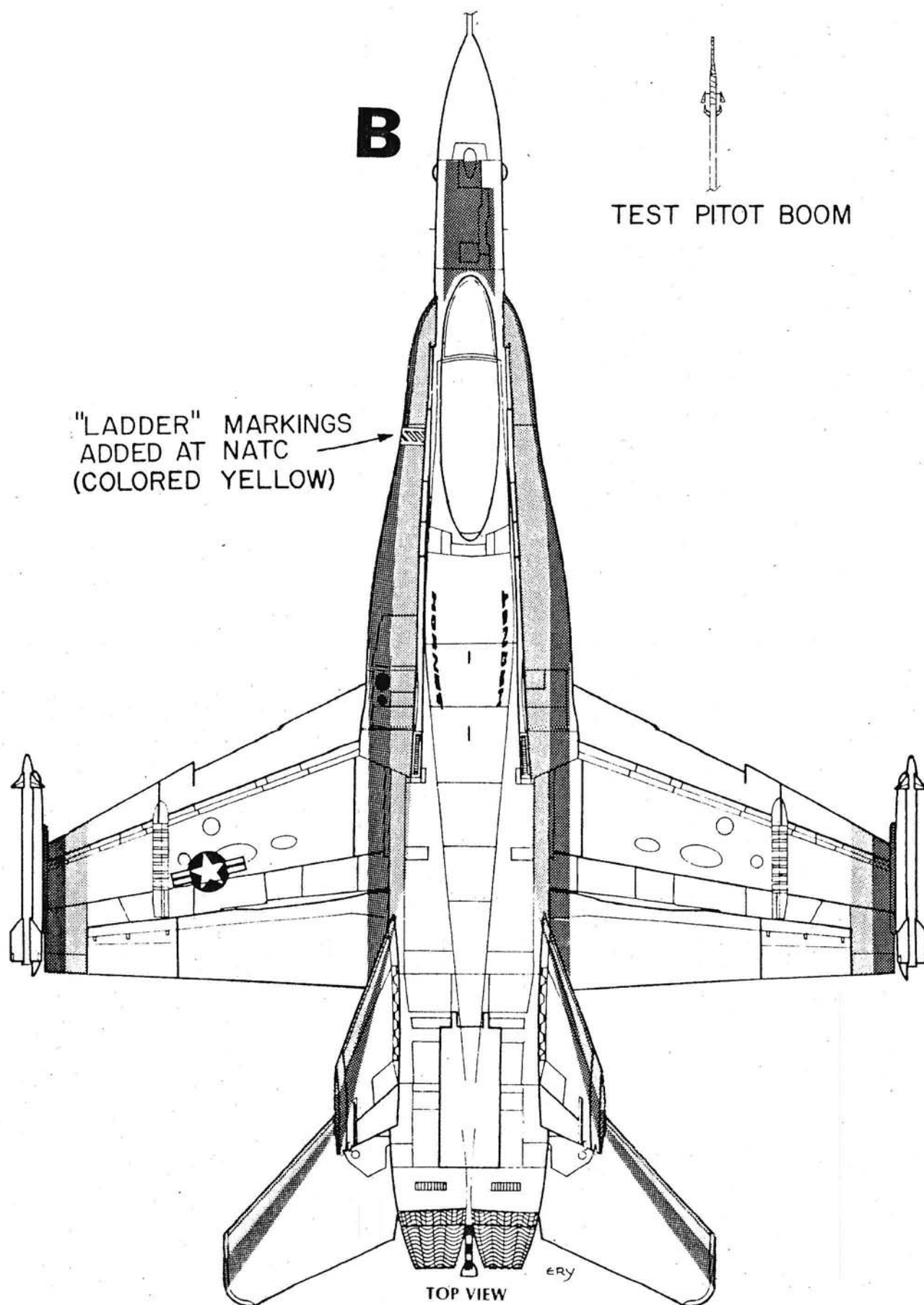
DARK
BLUE

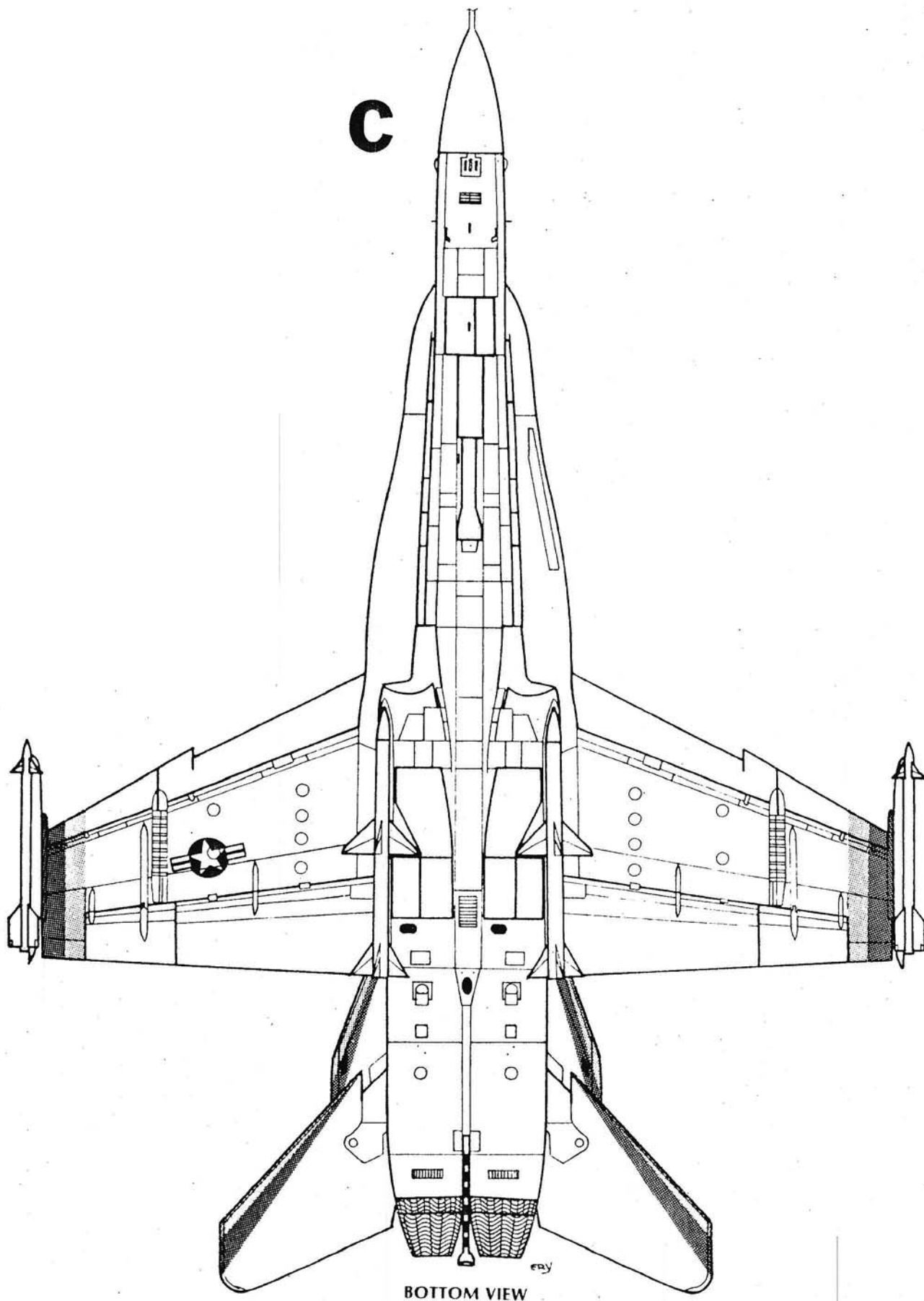


BARE
METAL



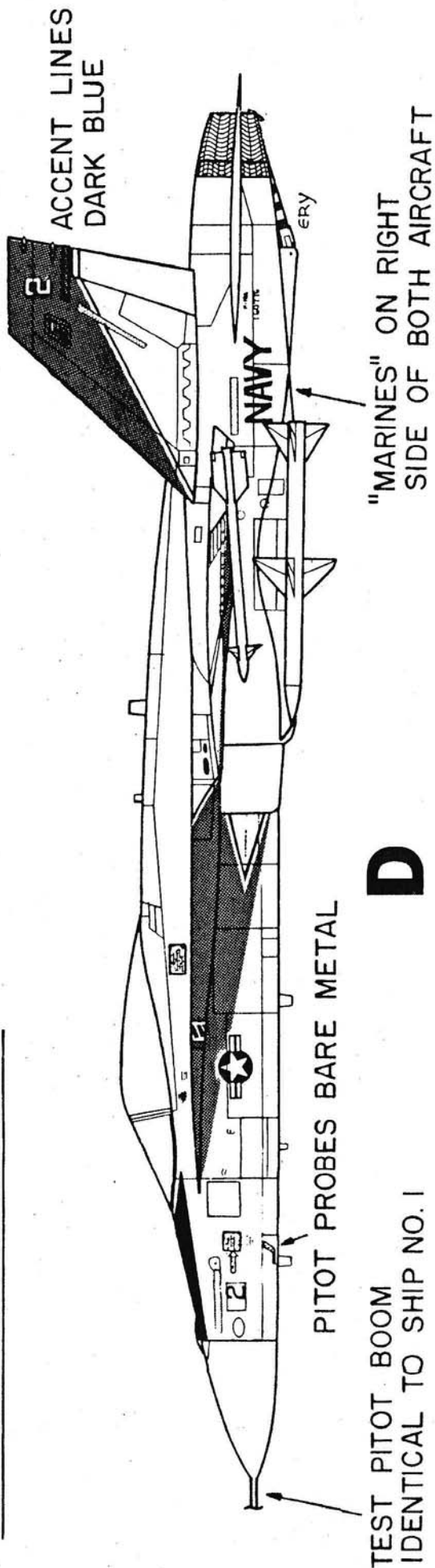
YELLOW





HORNETS TWO AND THREE

SHIP NO. 2 --BU. AER. NO. 160776

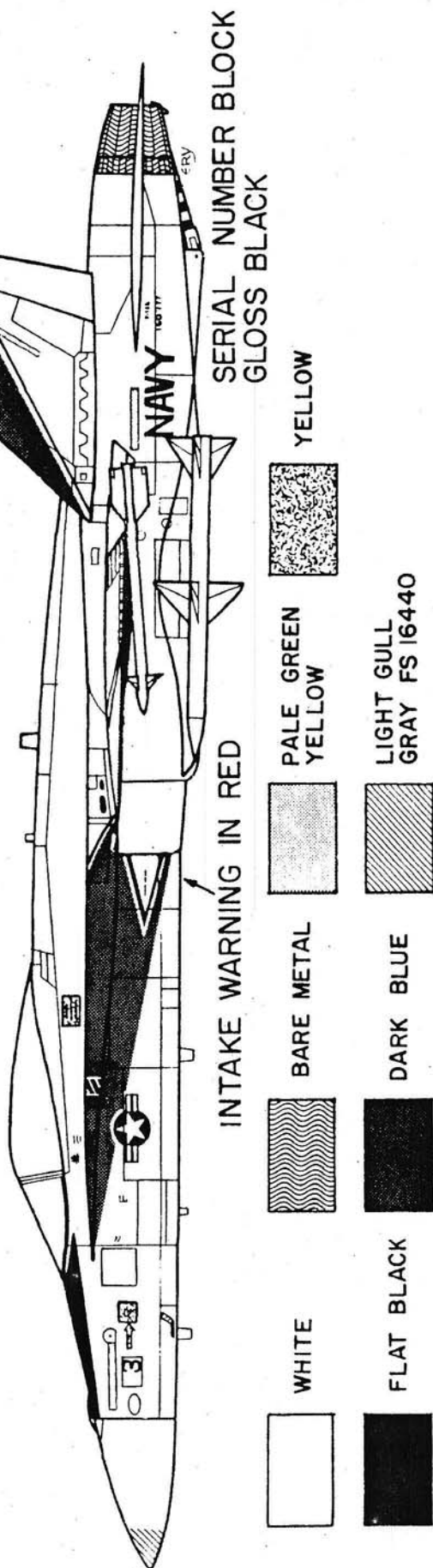


D

SHIP NO. 3 --BU. AER. NO. 160777

"NAVY/MARINES" AND
"2" OR "3" ON NOSE
DARK BLUE

EJECTION WARNING
IN RED



SHIP NO. 2

E

SHIP NO. 3

YELLOW LADDER MARKINGS

RED POSITION
LIGHT

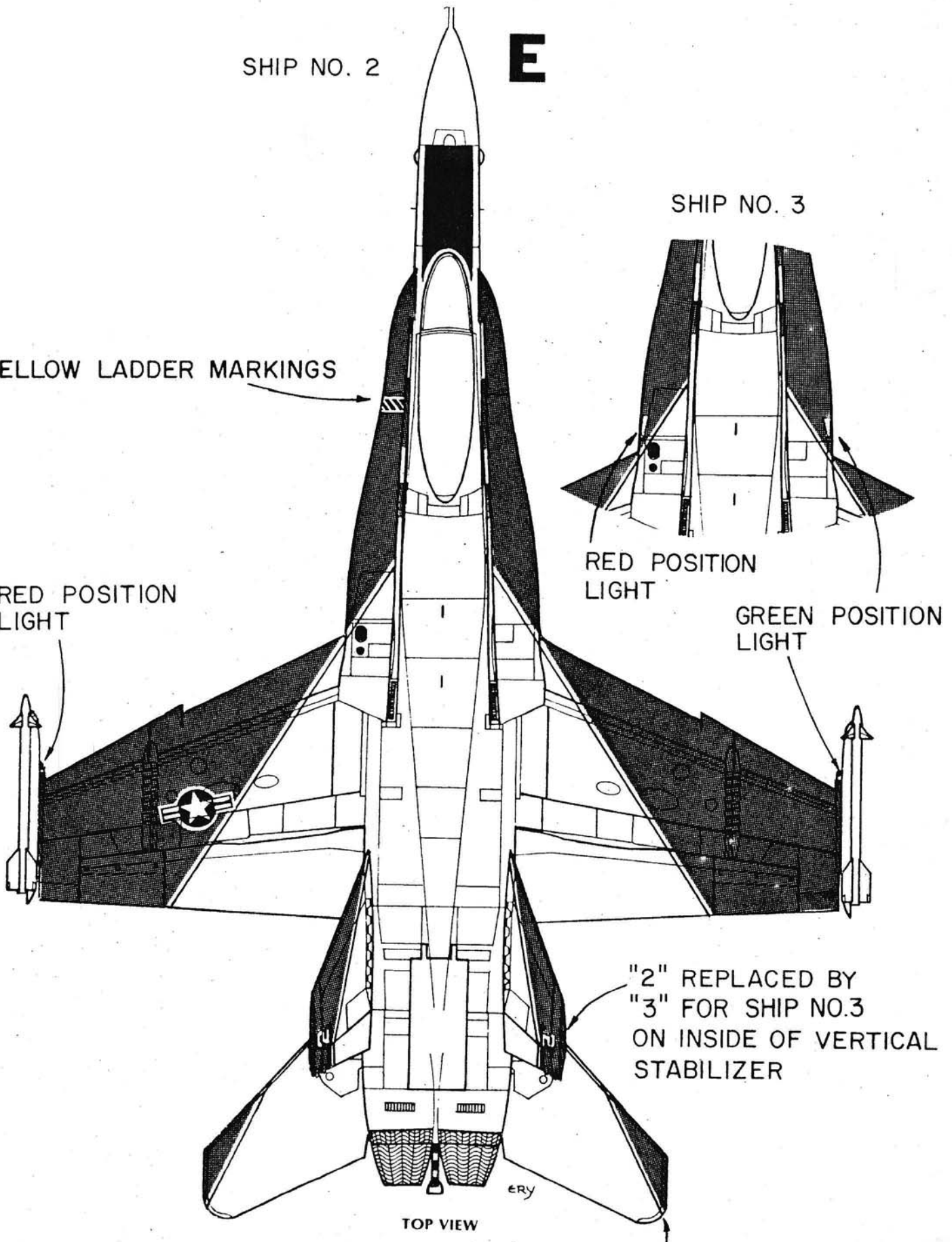
RED POSITION
LIGHT

GREEN POSITION
LIGHT

"2" REPLACED BY
"3" FOR SHIP NO.3
ON INSIDE OF VERTICAL
STABILIZER

TOP VIEW

ACCENT LINES DARK BLUE



SHIP NO.2

F

SHIP NO. 3

SHIP NO. 3

GREEN POSITION
LIGHT

RED POSITION
LIGHT

BOTTOM VIEW