

REPORT DOCUMENTATION PAGE

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6. AUTHOR(S) LCDR T. C. Gurney and Jim Sandberg		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Commander Naval Air Warfare Center Aircraft Division 22541 Millstone Road Patuxent River, Maryland 20670-5304		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Naval Air Systems Command Department of the Navy 1421 Jefferson Davis Highway Arlington, VA 22243		10. SPONSORING/MONITORING AGENCY REPORT NUMBER

19960506 148

11. SUPPLEMENTARY NOTES

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13. ABSTRACT (Maximum 200 words) This presentation shows a background of the F/A-18 Super Hornet. Some background information includes: Program history, aircraft description, flight test program and the lessons noted.
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14. SUBJECT TERMS F/A-18E/F, Super Hornet, Integrated Test Team	15. NUMBER OF PAGES 37
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Enclosure (6)

DTC QUALITY INSPECTED 1



DEPARTMENT OF THE NAVY
 NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION
 PATUXENT RIVER, MARYLAND 20670-5304

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4 MAR 1996

From: Team Leader, Technical Publishing Team, Naval Air Warfare Center Aircraft Division,
 22541 Millstone Road, Patuxent River, MD 20670-5304
 To: Commander, Naval Air Systems Command (AIR 7.5), 1421 Jefferson Davis Highway,
 Arlington, VA 22243

Subj: REQUEST FOR RELEASE OF TECHNICAL INFORMATION

Encl: (1) Flight Test Update - F/A-18E/F Super Hornet (Slides) (2 copies)
~~(2) F-18E1 Arrival at NAWCAD Patuxent River (Video Tape)~~

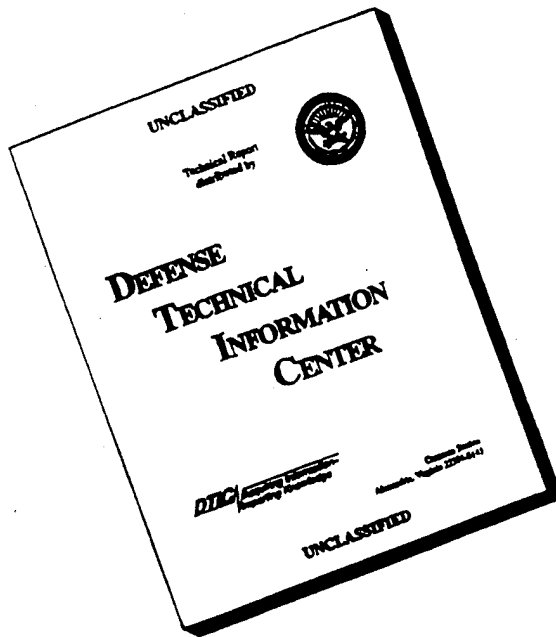
1. Enclosures (1) and (2) are forwarded for review and approval for public release.
2. Enclosures (1) and (2) will be presented at the Society of Experimental Test Pilots, San Diego, California on 15 March 1996. The authors of enclosure (1) are LCDR T. C. Gurney and Mr. Jim Sandberg. The proposed NAVAIR reviewer is Mr. Willie Smith (PMA265-F1). Request approval by ASAP or no later than 13 March 1996.
3. Please contact Dorothy Reppel at DSN 342-1709 or commercial (301) 342-1709 should you have any questions.

Karen L. Brown
 KAREN L. BROWN

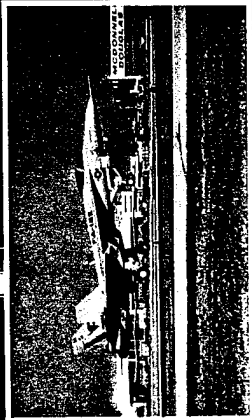
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Dept.		Phone #	342-1709
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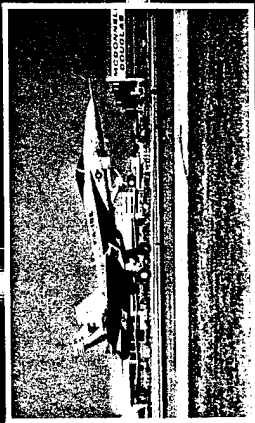
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Flight Test Update

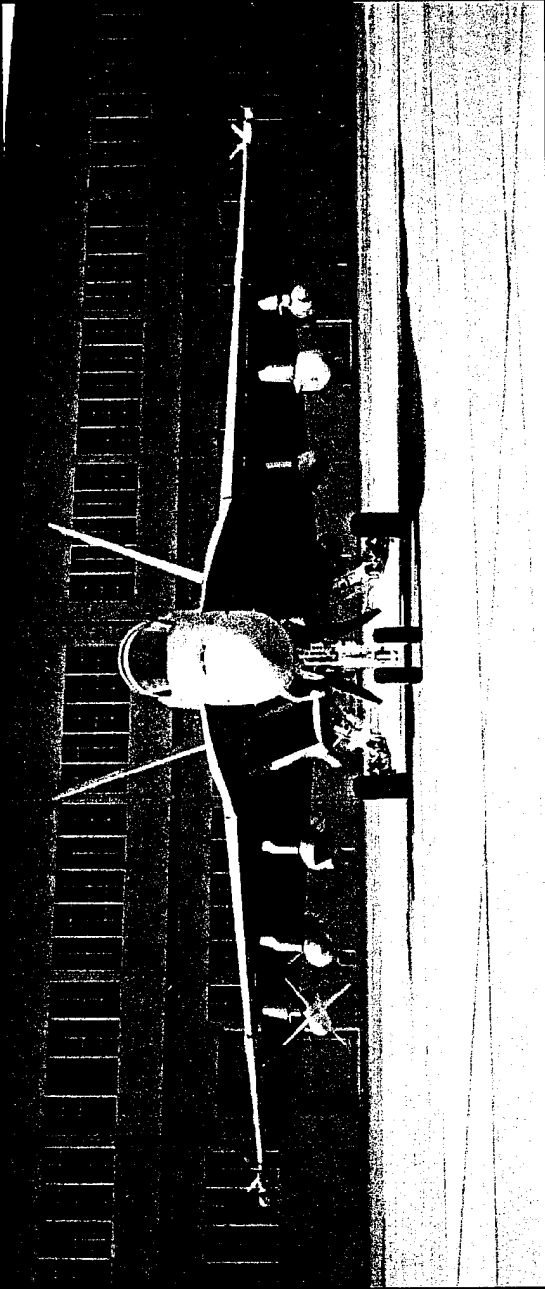


F/A-18E/F
Super
Hornet

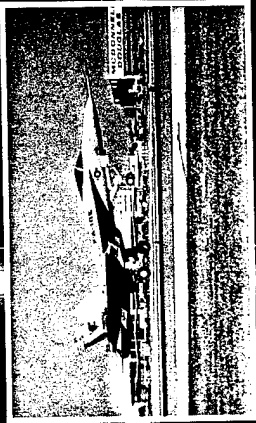


The Society of Experimental Test Pilots

26th San Diego Symposium
March, 1996



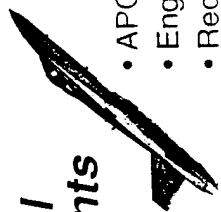
Mr. Jim Sandberg, NGC (AF)
LCDR Tom Gurney, USN (M)



- **Program History**
- **Aircraft Description**
- **Flight Test Program**
- **Lessons Noted**

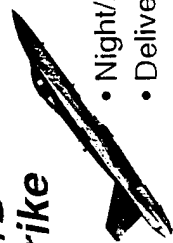
Continues Horhet Evolution

Additional Improvements



- APG-73 Radar Upgrade
- Engine Upgrade
- Reconnaissance

F/A-18C/D Night Strike



- Night/Adverse Weather Capability
- Deliveries Began October 1989

F/A-18C/D



- Advanced Weapons
- Improved Systems
- Fleet Deliveries September 1987

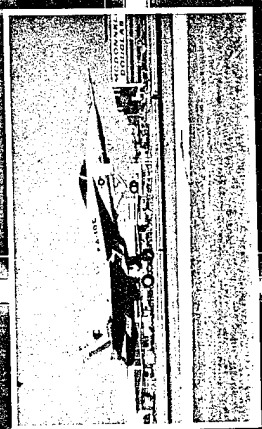
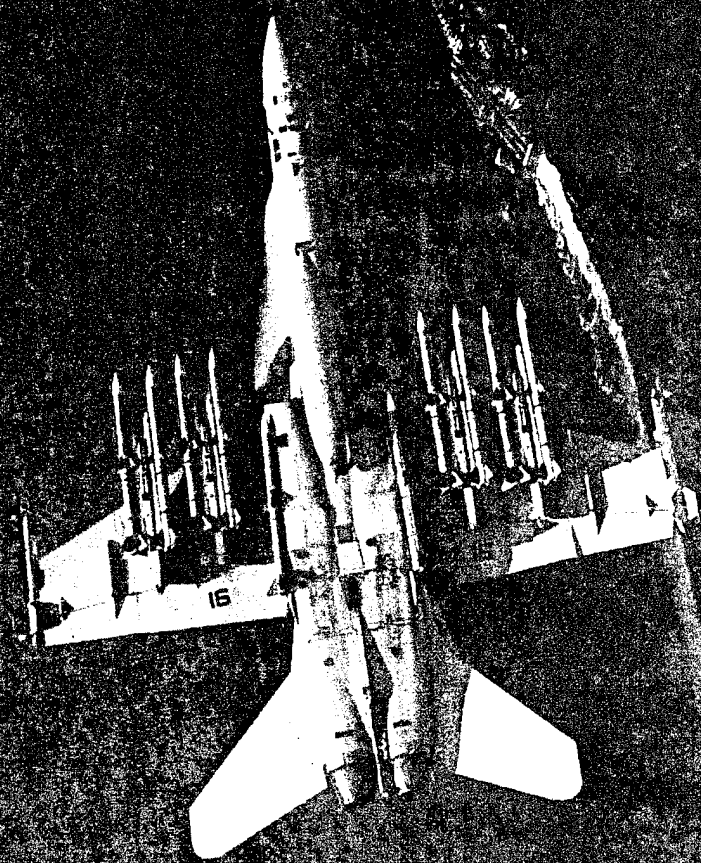
F/A-18A/B



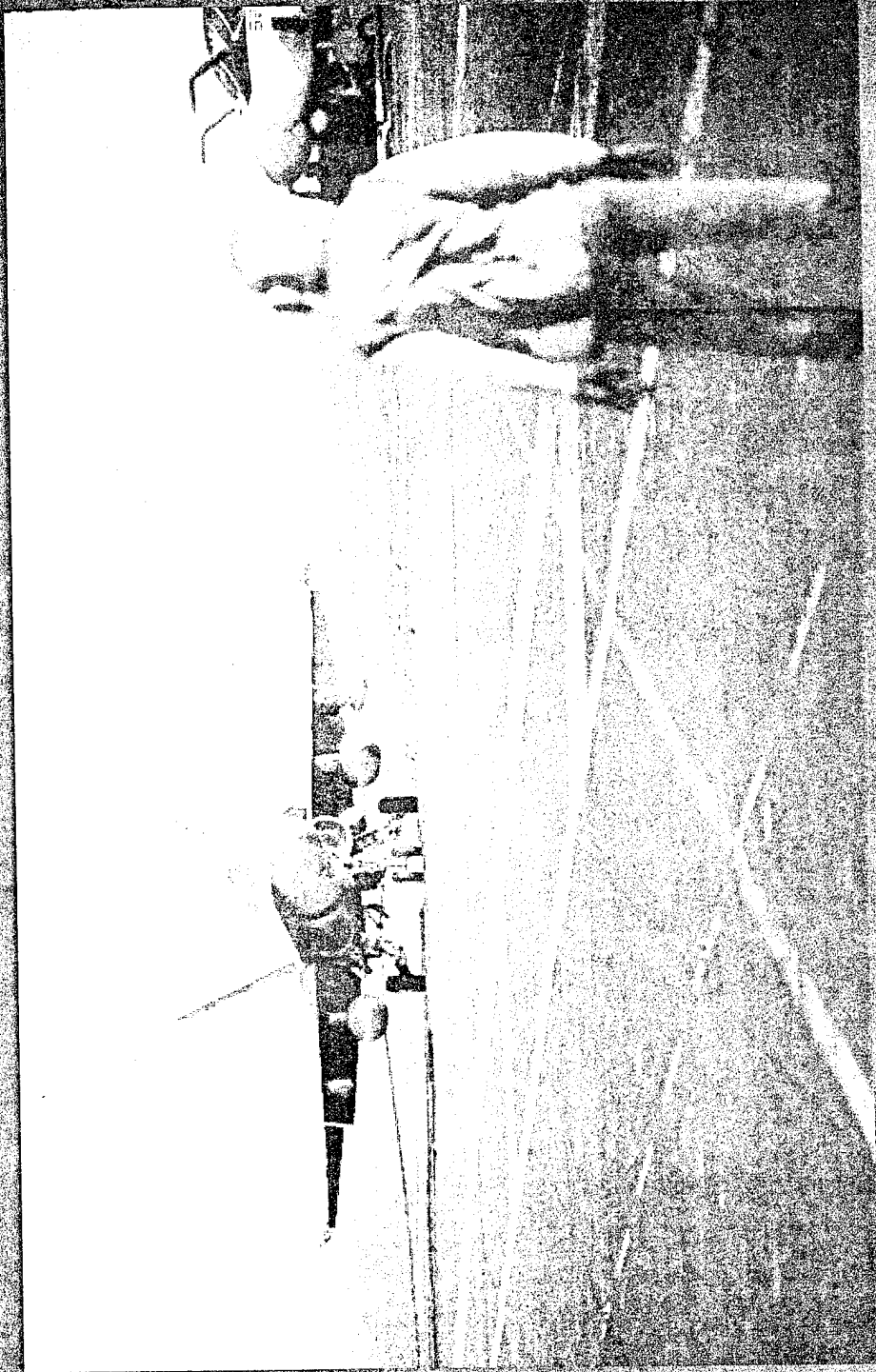
- Replaced A-7 and F-4
- First Flight November 1978



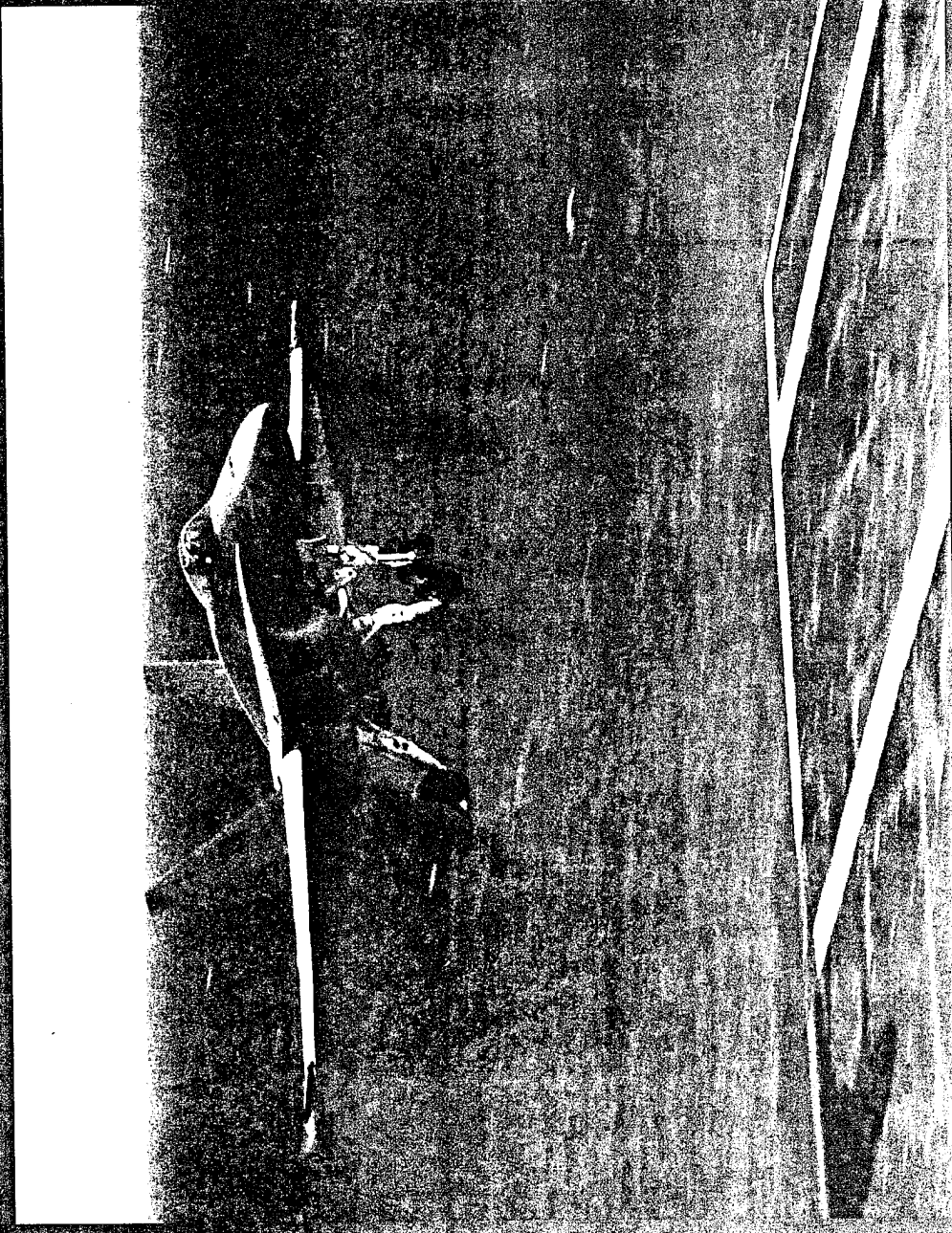
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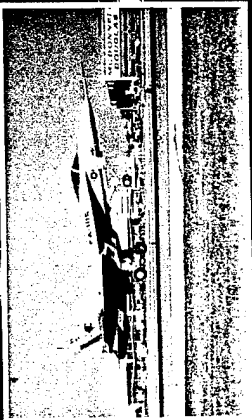


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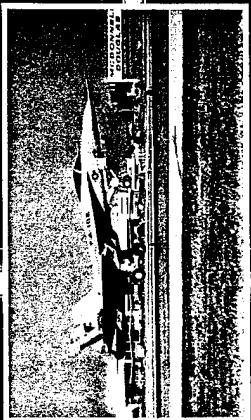
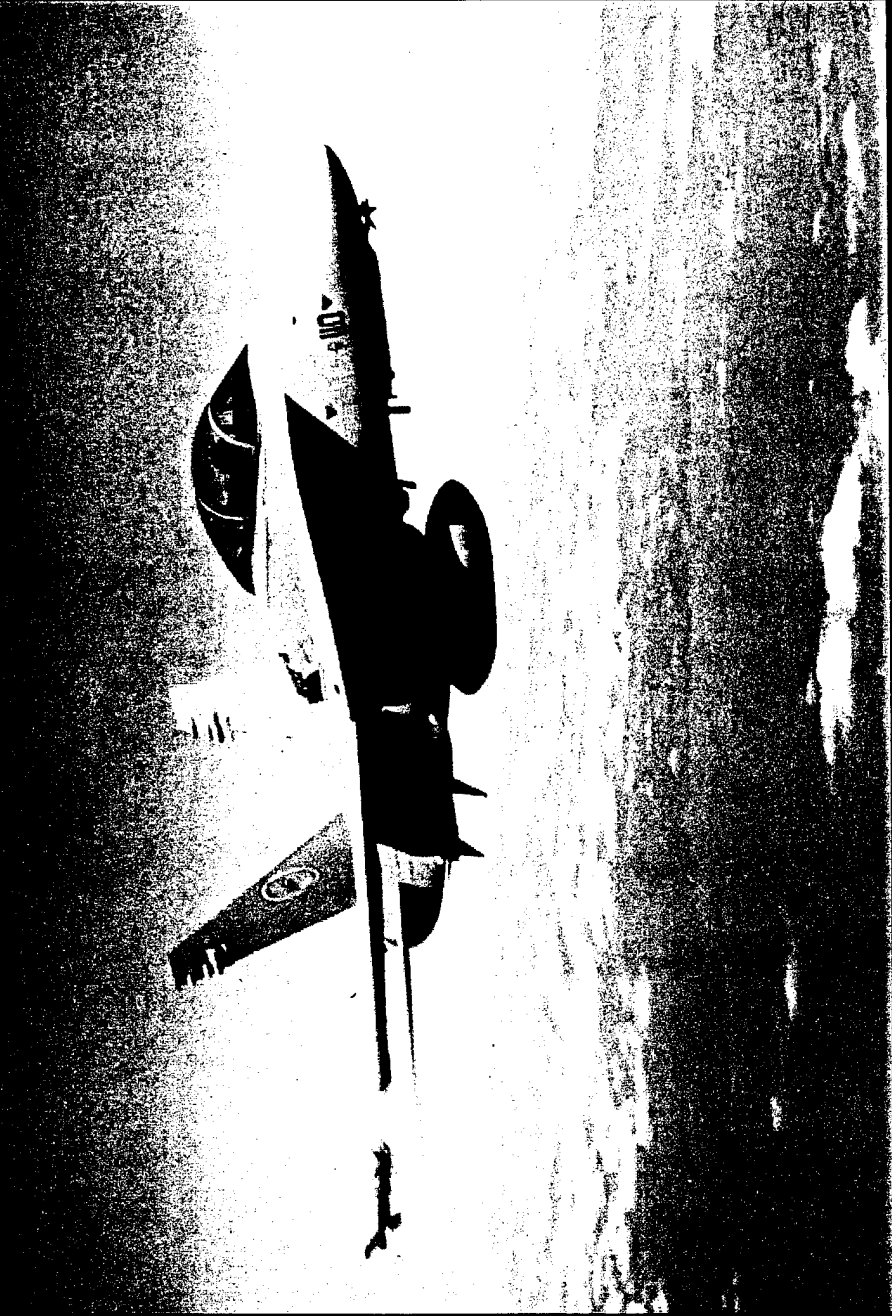


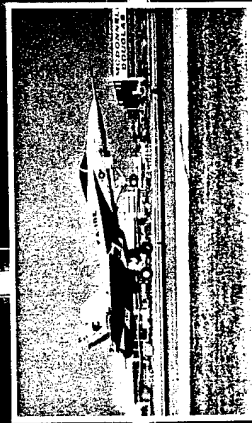


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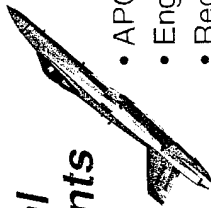
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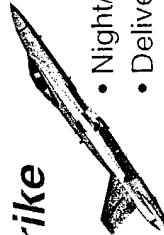
Continues Hornet Evolution

Additional Improvements



- APG-73 Radar Upgrade
- Engine Upgrade
- Reconnaissance

F/A-18C/D Night Strike



- Night/Adverse Weather Capability
- Deliveries Began October 1989

F/A-18C/D



- Advanced Weapons
- Improved Systems
- Fleet Deliveries September 1987

F/A-18A/B



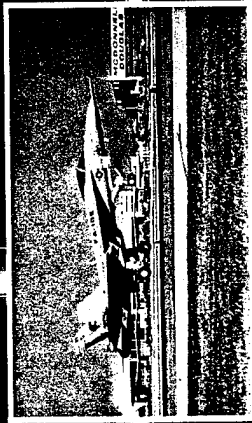
- Replaced A-7 and F-4
- First Flight November 1978

F/A-18E/F

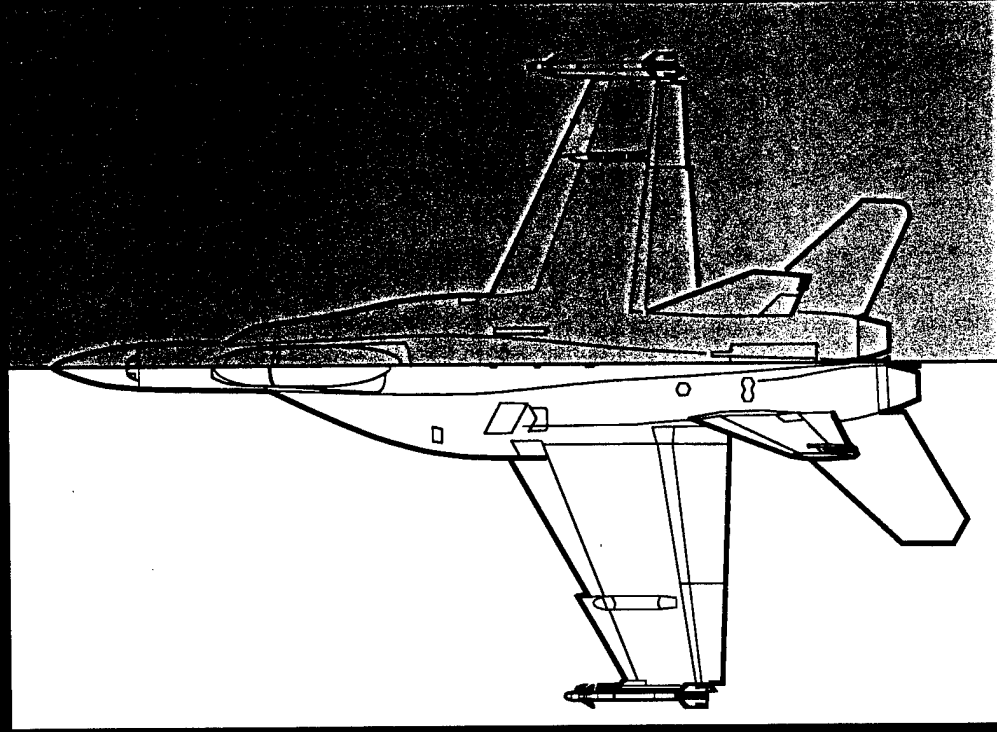


- Longer Range
- Payload Flexibility
- Increased Payload Recovery
- Improved Survivability
- Growth Margin

Maintaining Outstanding Carrier Suitability and Growth Potential



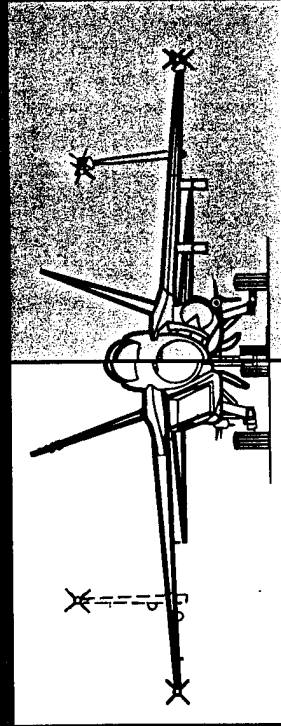
F/A-18E Characteristics



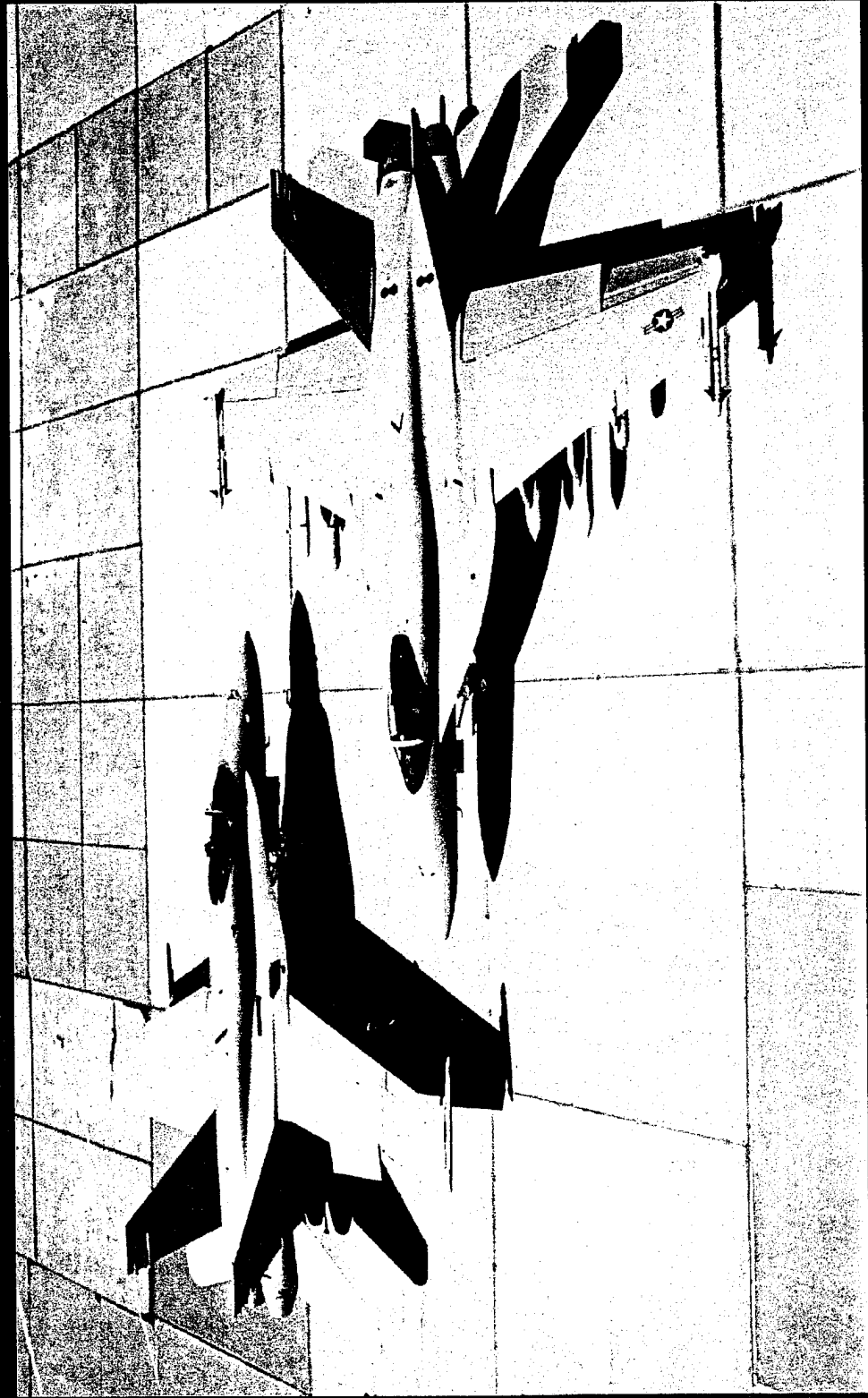
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F/A-18E	F/A-18C
500 sq ft	400 sq ft
30,564 lb	23,332 lb
66,000 lb	51,900 lb
47,874 lb	37,790 lb
42,900 lb	33,000 lb
F414	F402
44,000 lb	32,000 lb
14,460 lb	10,860 lb
6,730 lb	6,730 lb
9,790 lb	7,590 lb
7.5 g	7.5 g

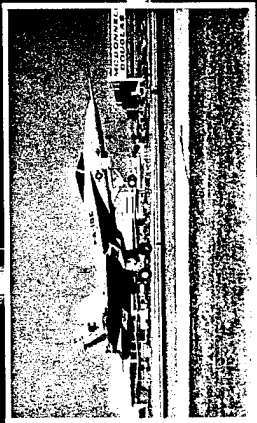
Wing Area
 Weight
 Empty
 Max TOGW
 Takeoff (Fighter Escort)
 Carrier Landing
 Propulsion
 (2) F404 Derivative Turbos
 Engine
 Total Thrust Class (SLSU)
 Fuel (JP-5)
 Internal
 External
 330 gal. Tanks
 480 gal. Tanks
 Design Load Factor (USN)

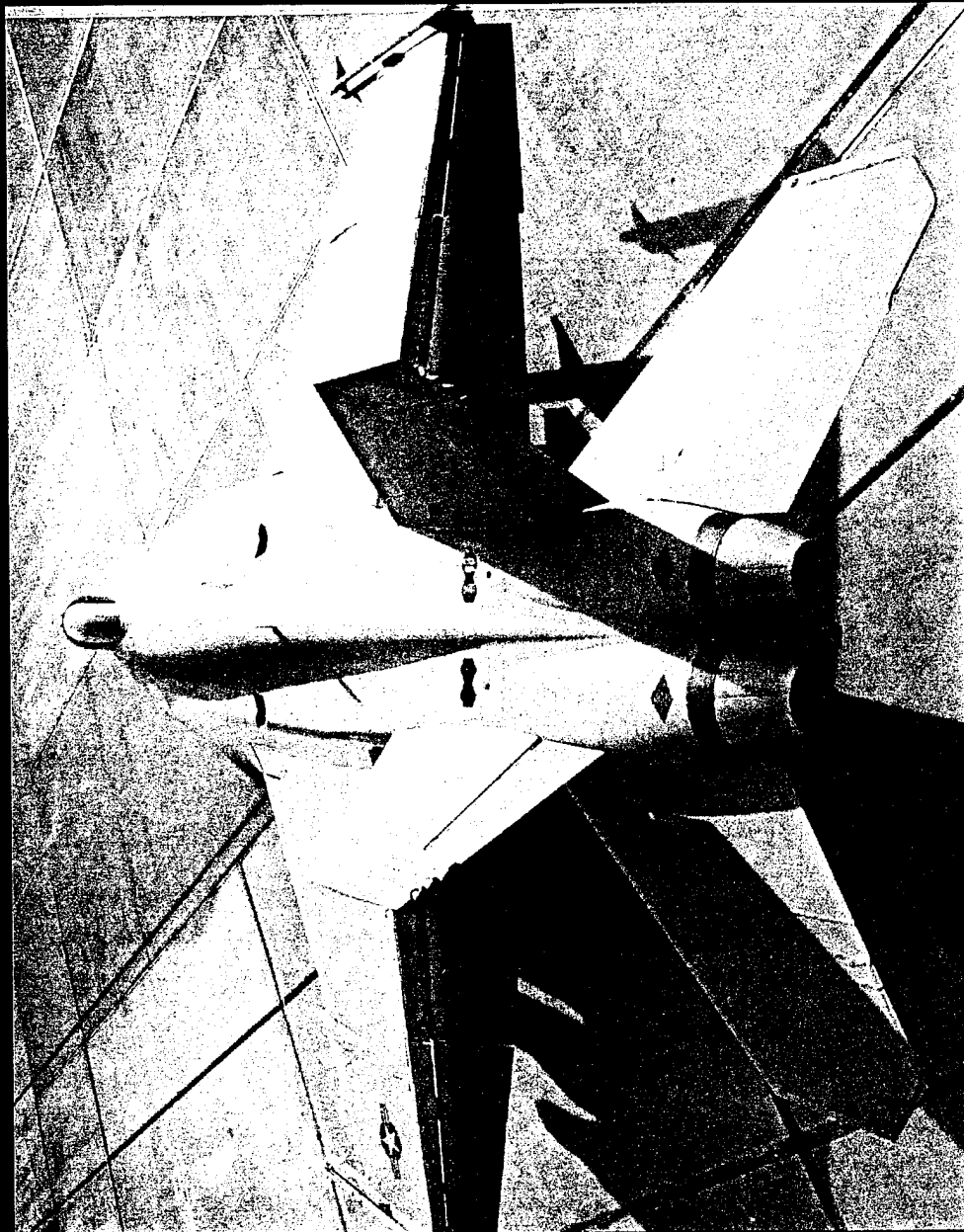


C - E Comparison



CFR2300008.CVS







F/A-18E/F Features

Additional 3,600(E)/3,385(F) lb Internal Fuel

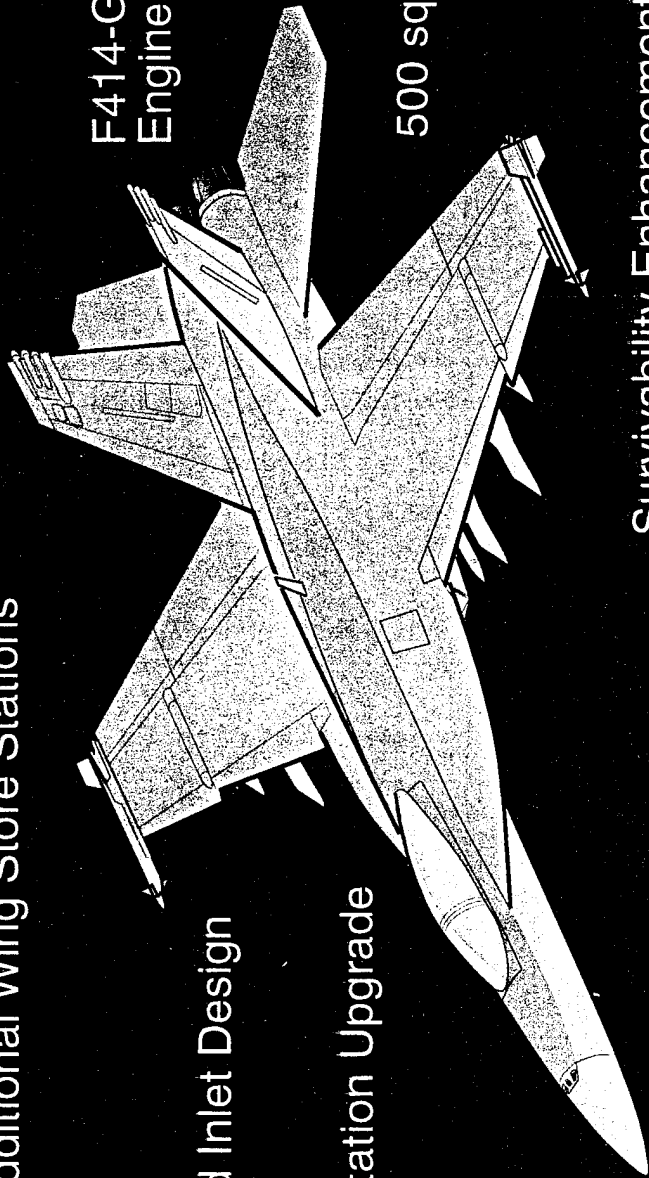
Dual Pressure Hydraulics

Two Additional Wing Store Stations

F414-GE-400
Engines

Improved Inlet Design

Crew Station Upgrade

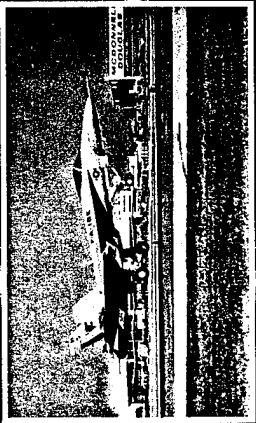


500 sq ft Wing

Survivability Enhancements

Aerial Refueling Store Compatibility

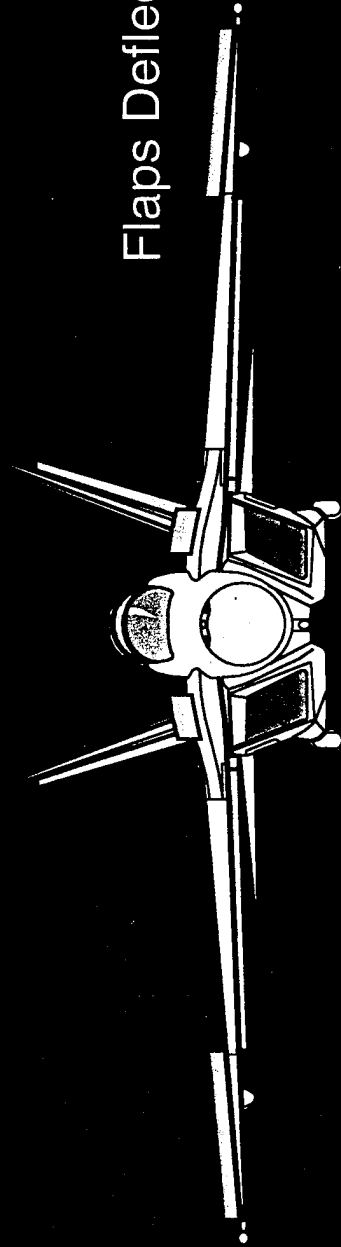
Increased Composite Usage for Fuselage Skins



Alternate Speedbrake Mechanization

Primary Flight Controls Deflect

LEX Spoilers Deflect



Flaps Deflect

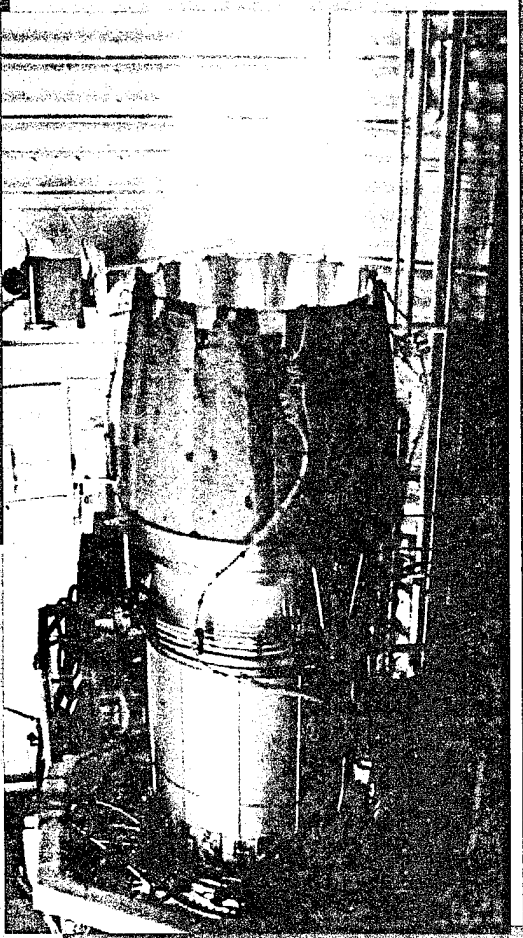
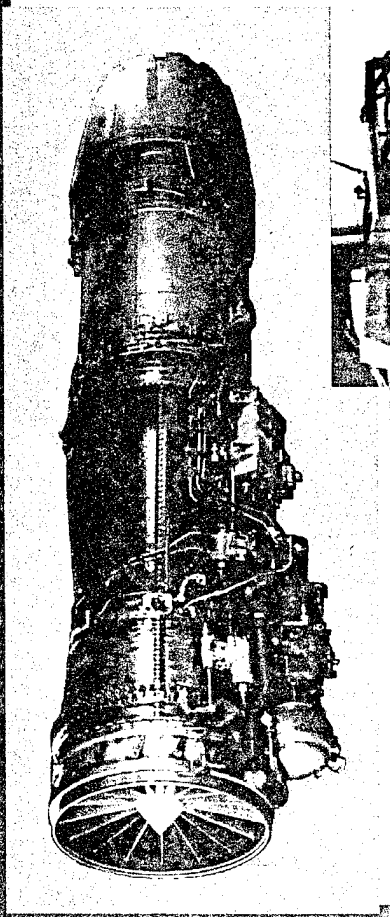
Mechanization Provides Roll and Yaw Command Priority Logic

GRIZARDUSOVS



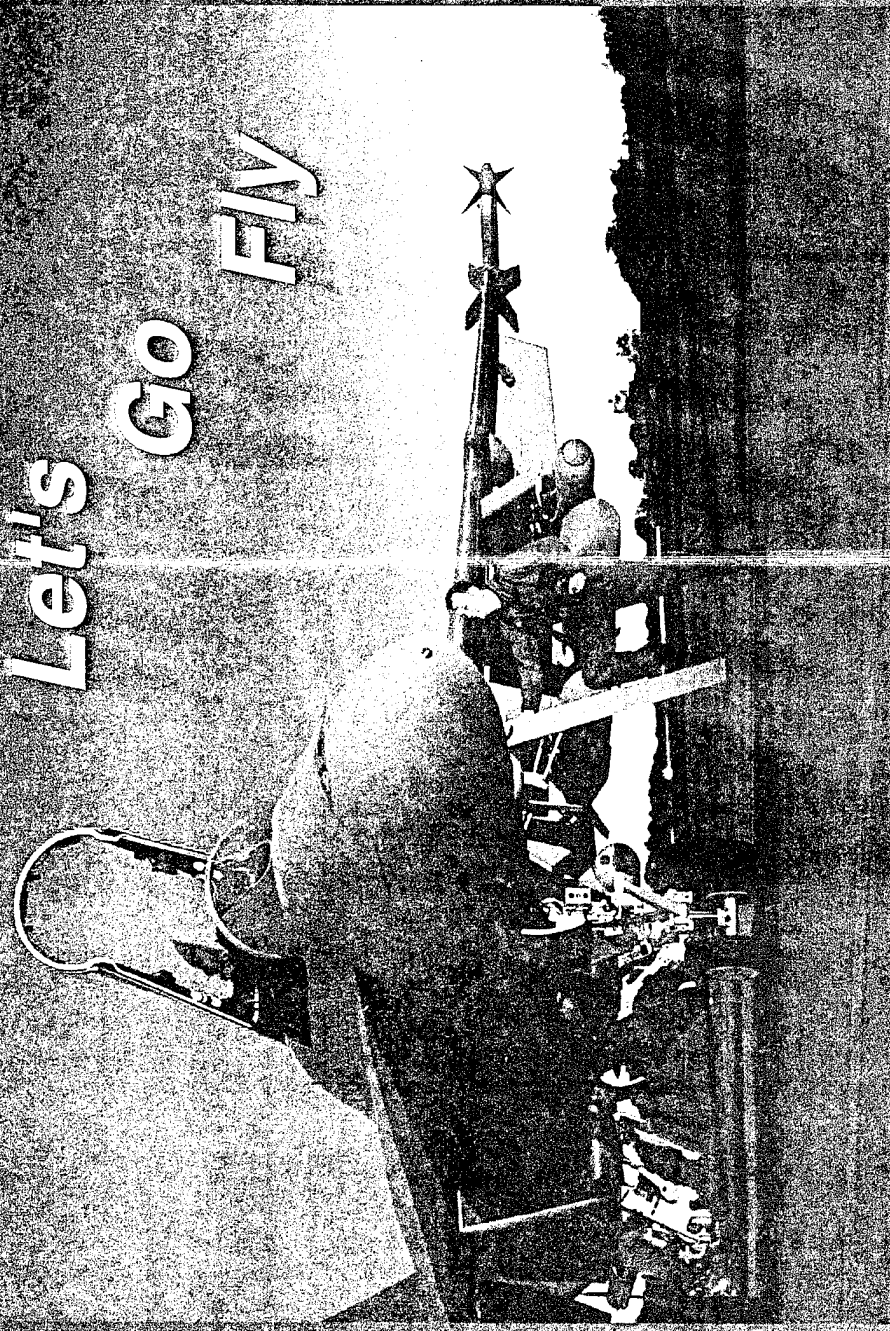


F414-GE-400 Turbofan Engine



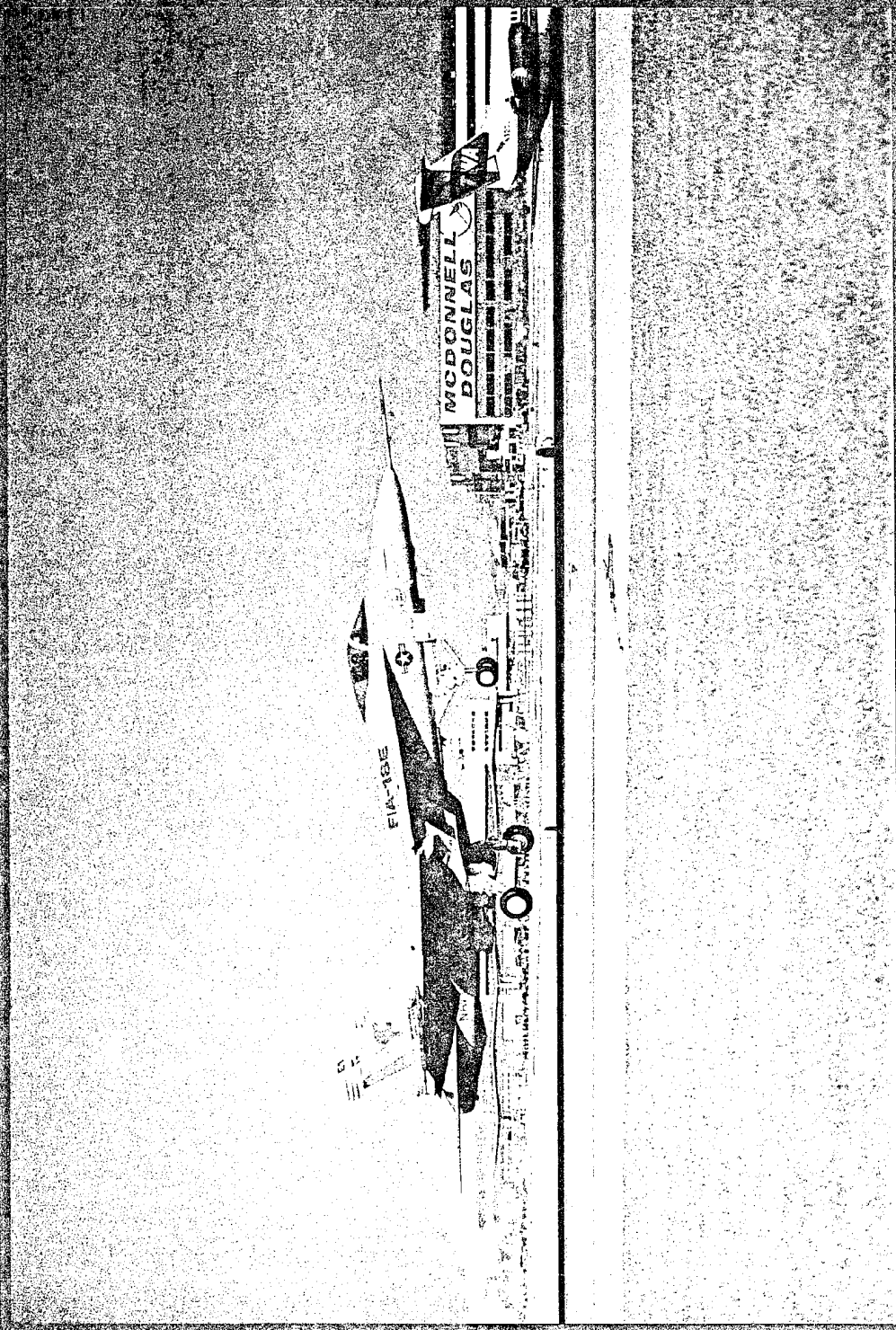
GE414-400-101-101

Let's GO FLY



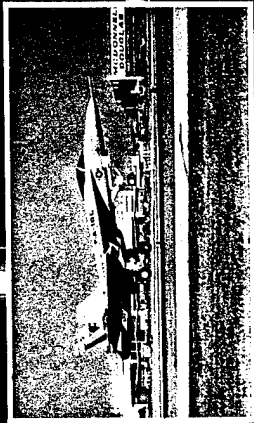
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E/F Flight Test Status (3/1/96)

- **E-1 6 Flights 8.8 hr**
- **E-2 6 Flights 9.0 hr**
- **Both Aircraft @ Pax – Ready to Test**
 - **E-1 Air Data/Envelope Expansion**
 - **E-2 FQ/Propulsion/IFR**

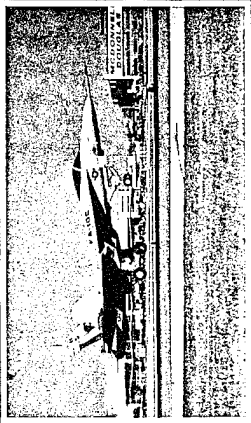
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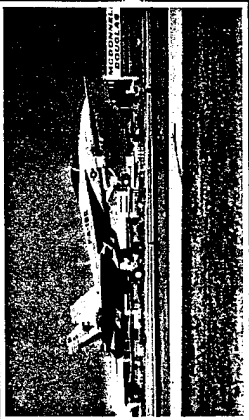
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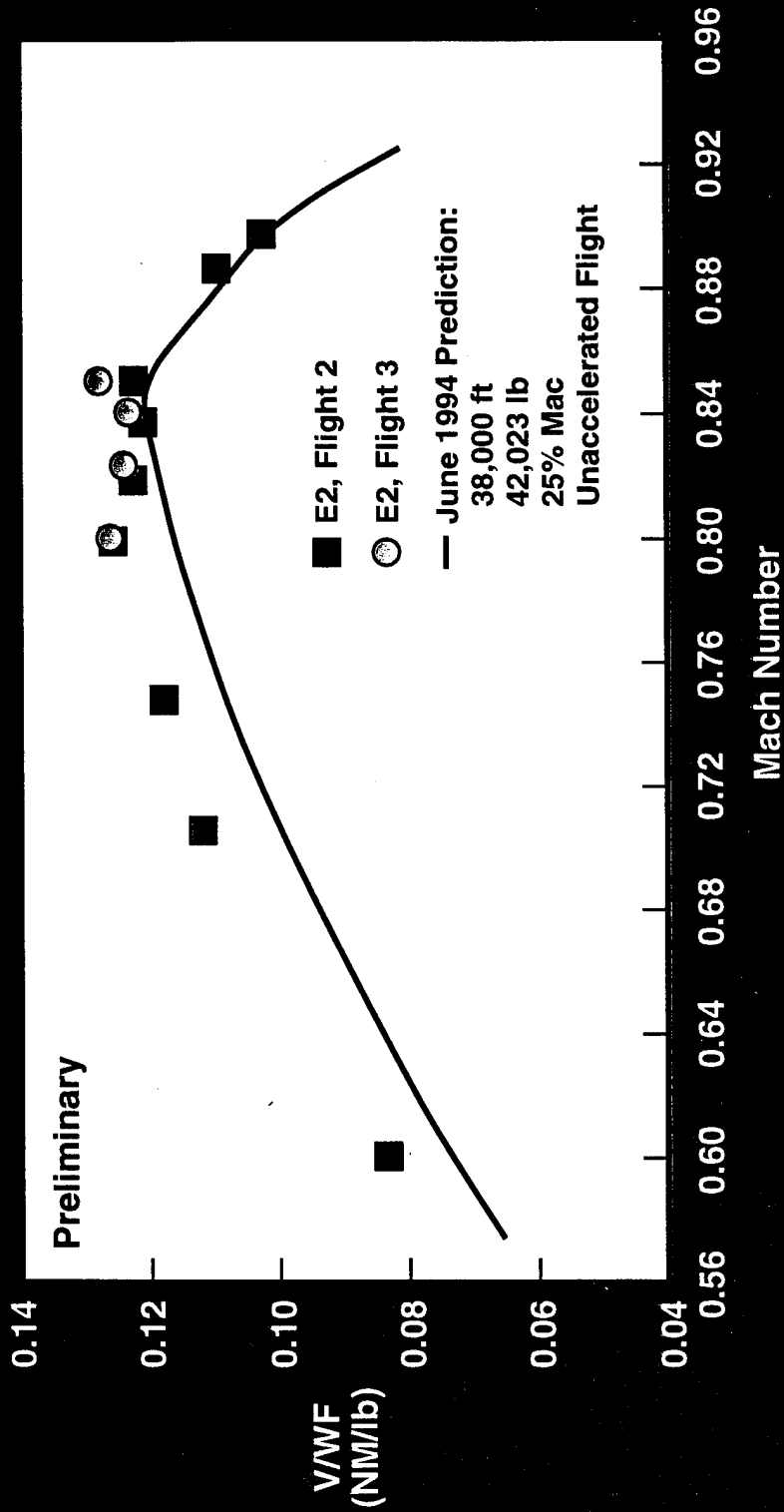


So, How Does It Fly?

- **Handling Qualities**
 - **Up and Away**
 - **Landing**
 - **No Major FCS Design Issues**
- **Engine**
 - **Precise Control**
- **Performance**
 - **"Data On the Line or Above"**
 - **Longer Test Missions**

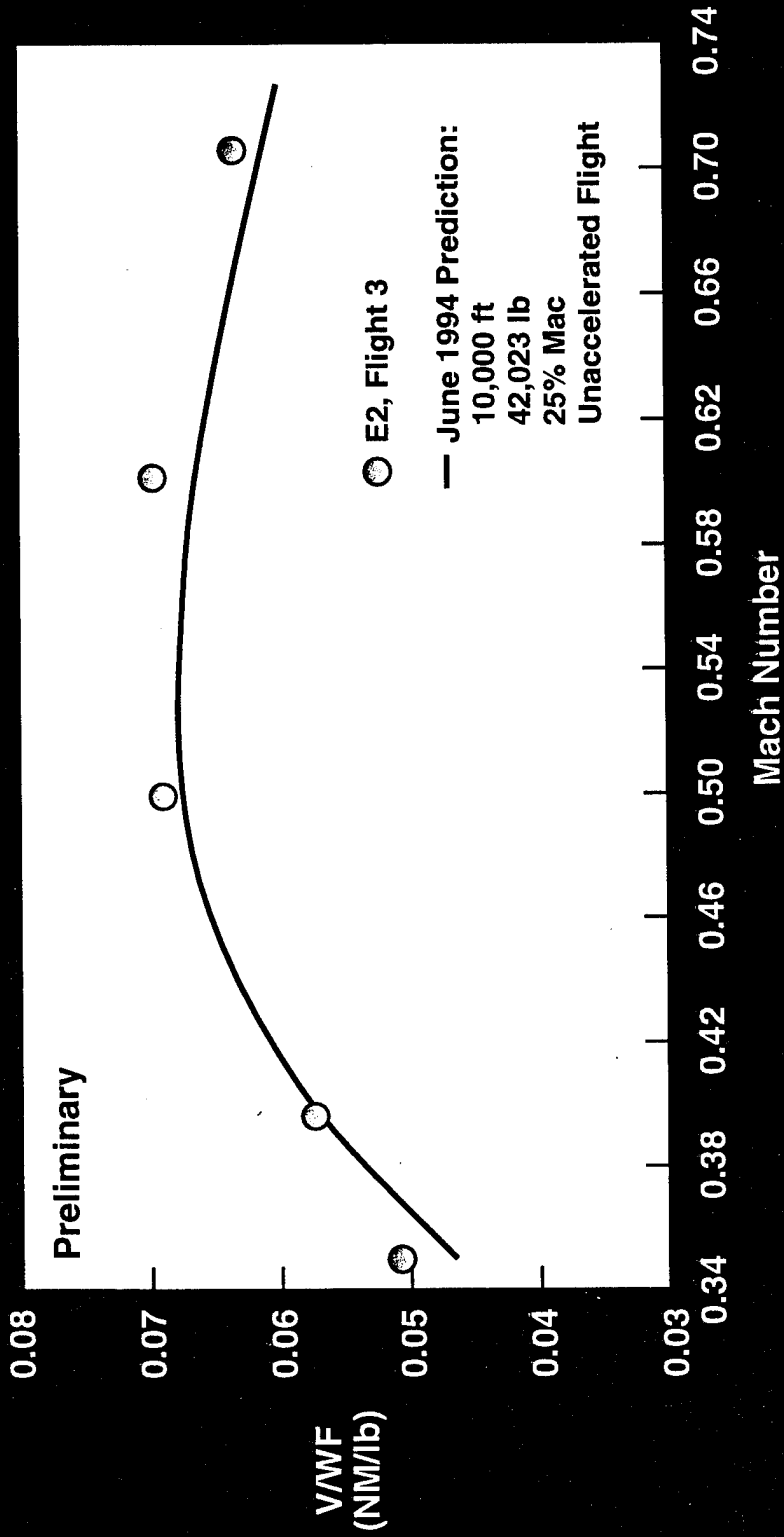


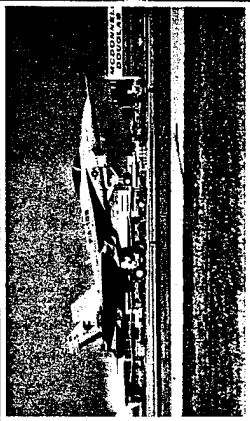
Raw Uncorrected EOA Cruise Specific Range @ W/Delta = 206,238 (2) AIM-9 Configuration





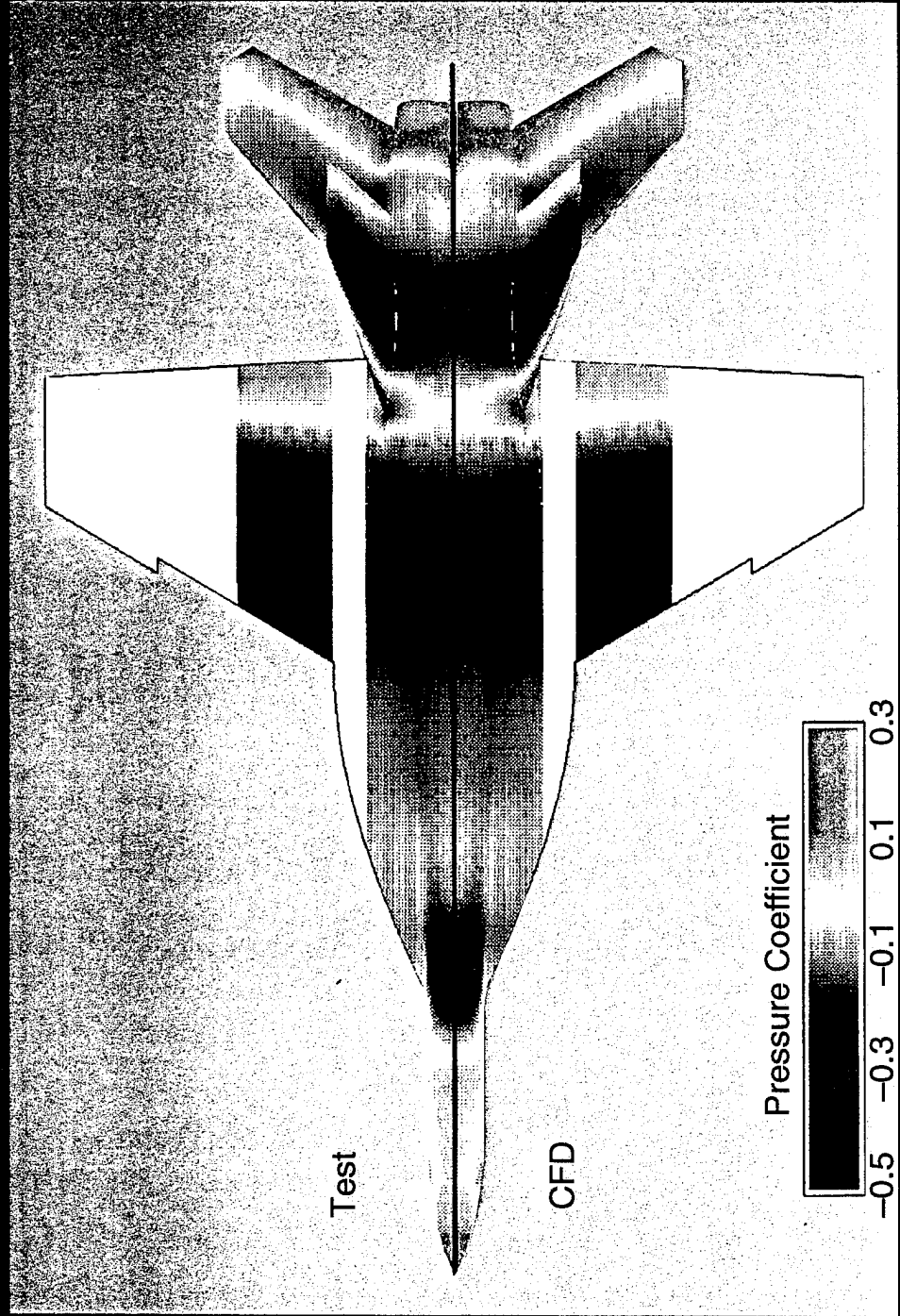
Raw Uncorrected EOA Cruise Specific Range @ W/Delta = 61,107 (2) AIM-9 Configuration

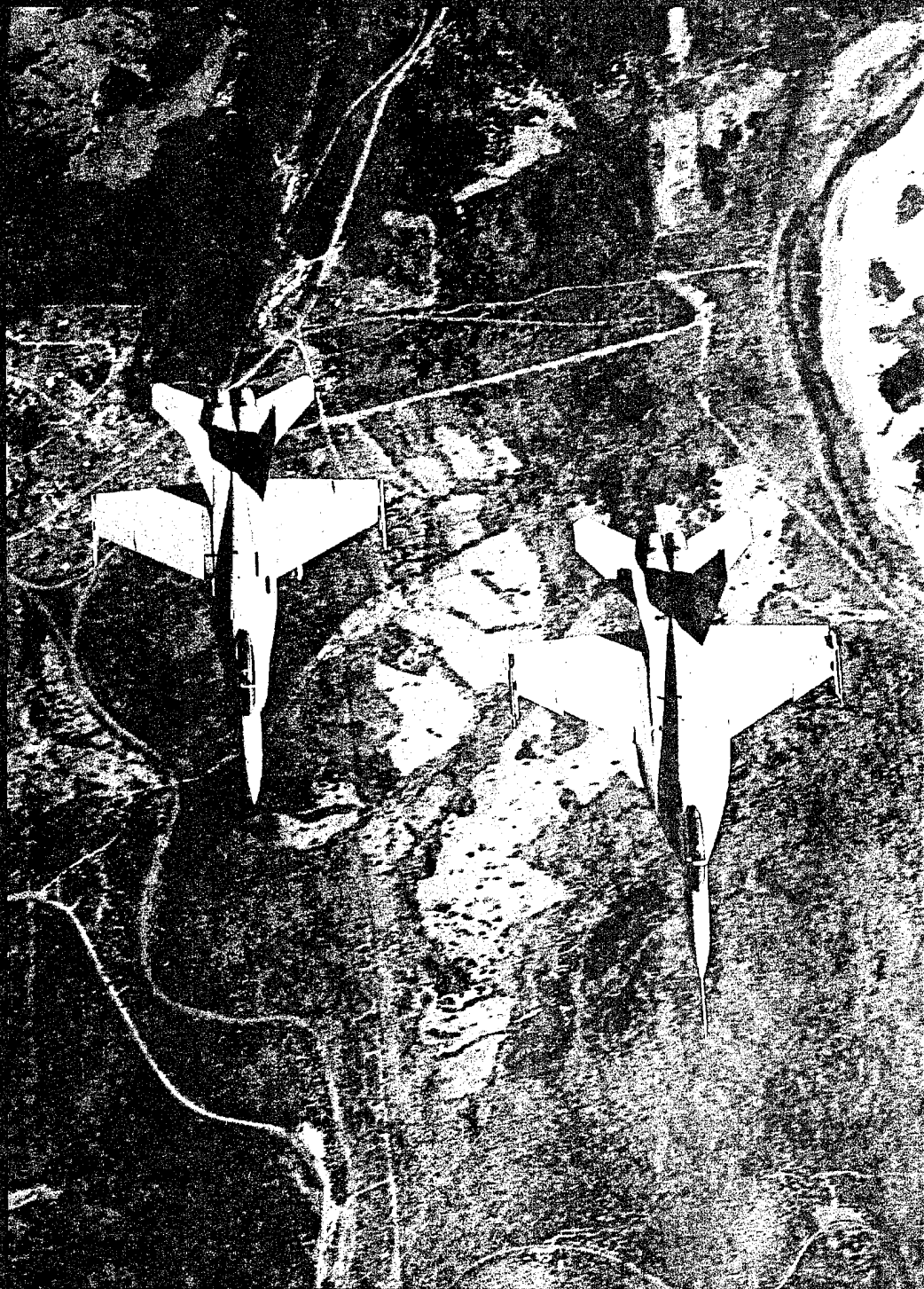




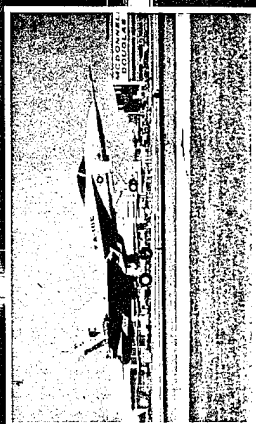
Test Data Validates CFD

F/A-18E Sting and Distortion/Jet Effects Model
Mach 0.85, $\alpha = 3.5^\circ$





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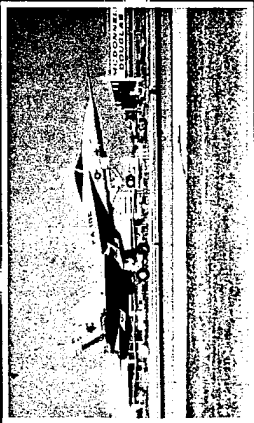


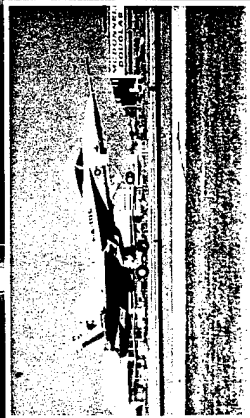
Comparisons

<p>Landing</p> <p>Climb</p> <p>High Altitude Maneuvering</p>	<p>42,000 lb GW</p> <p>133 KIAS App SPD</p> <p>Mid Power Climb</p> <p>Buffer Free</p>	<p>35,000 lb GW</p> <p>146 KIAS App SPD</p> <p>Afterburner Required</p> <p>In Buffet</p>
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CFR6300034 evs

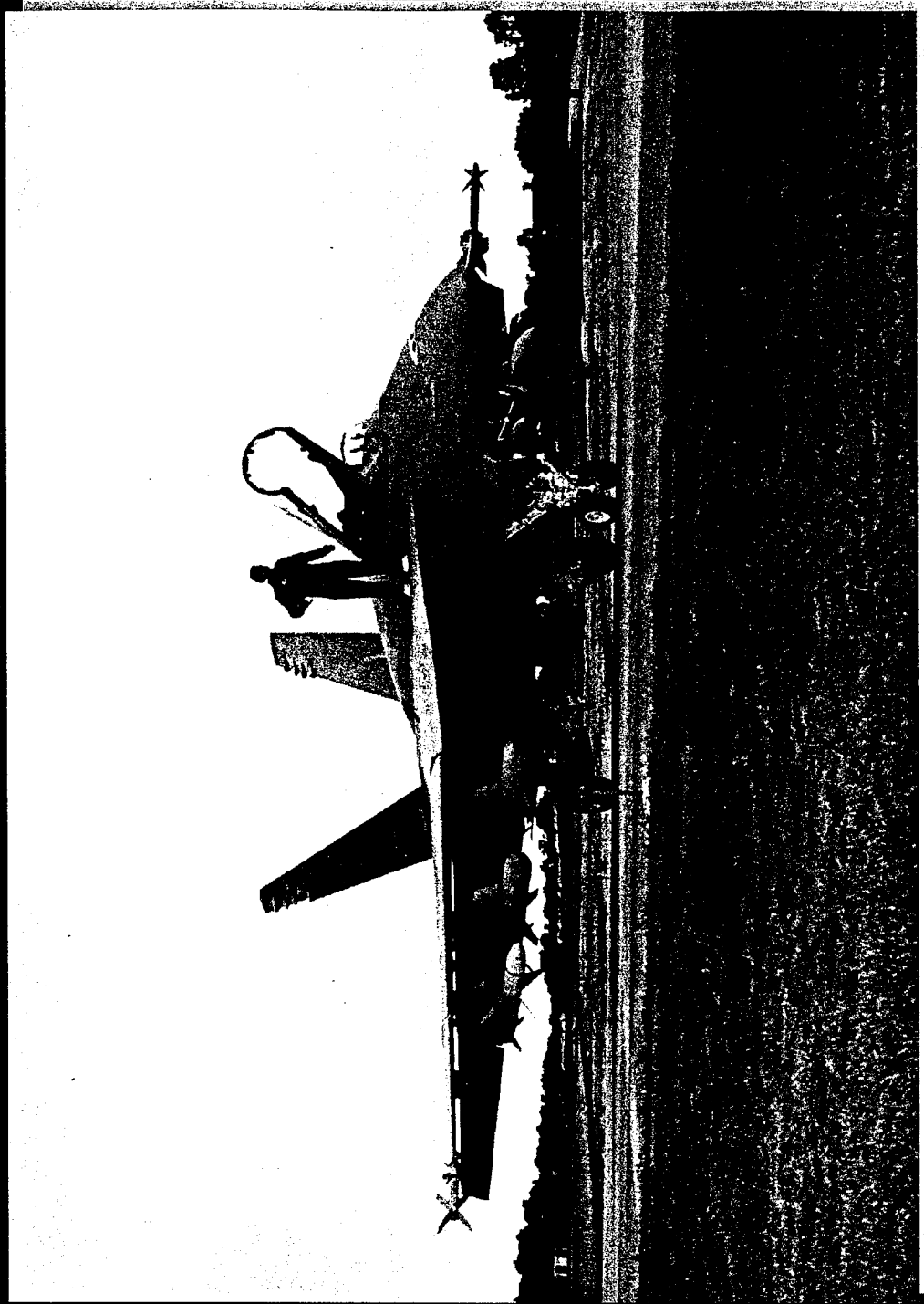




F/A-18E/F Aircraft Test Program Summary

Aircraft	1995												1996												1997												1998											
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D									
E1 (350)	[Redacted]																																															
E2 (345)	[Redacted]																																															
F1 (300)	[Redacted]																																															
E3 (265)	[Redacted]																																															
E4 (285)	[Redacted]																																															
E5 (258)	[Redacted]																																															
E6 (162)	[Redacted]																																															

Integrated Test Team

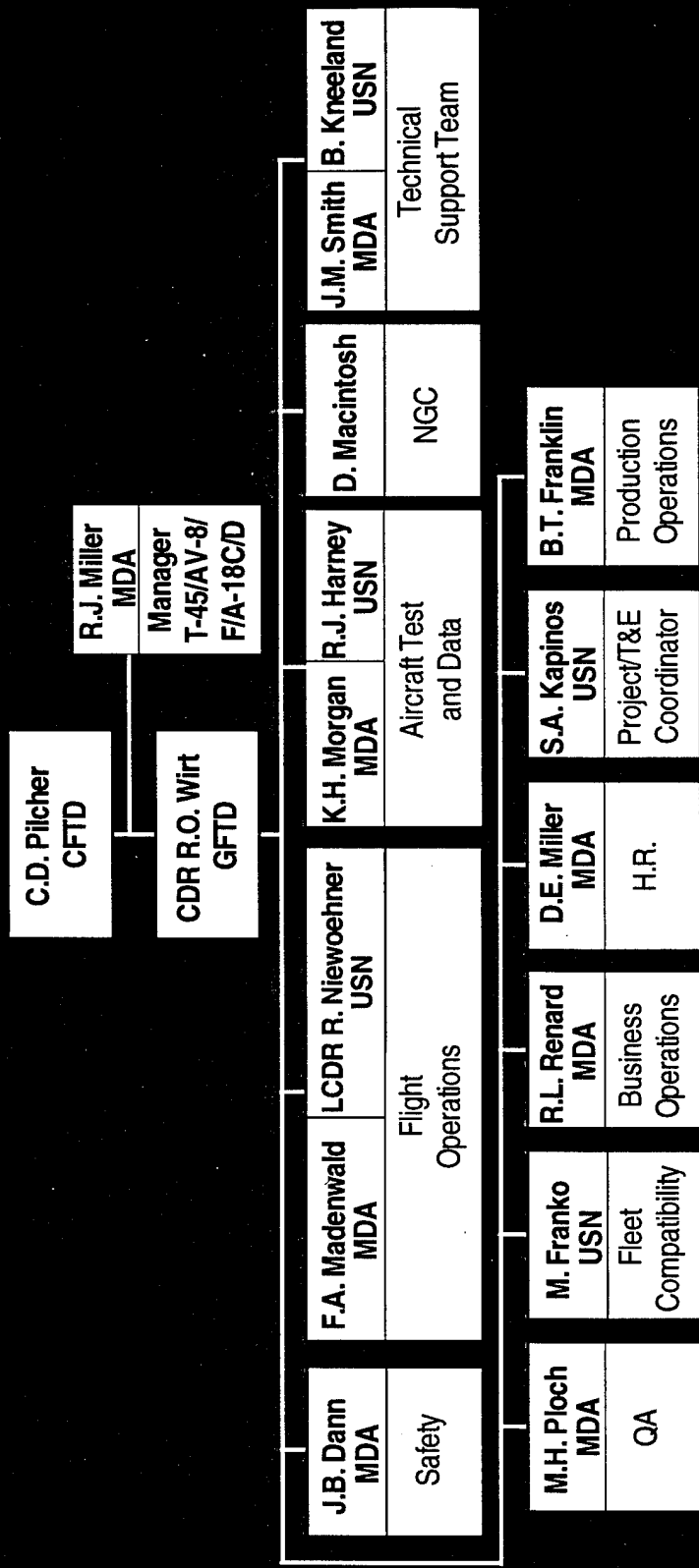


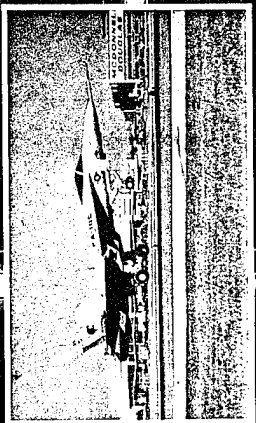
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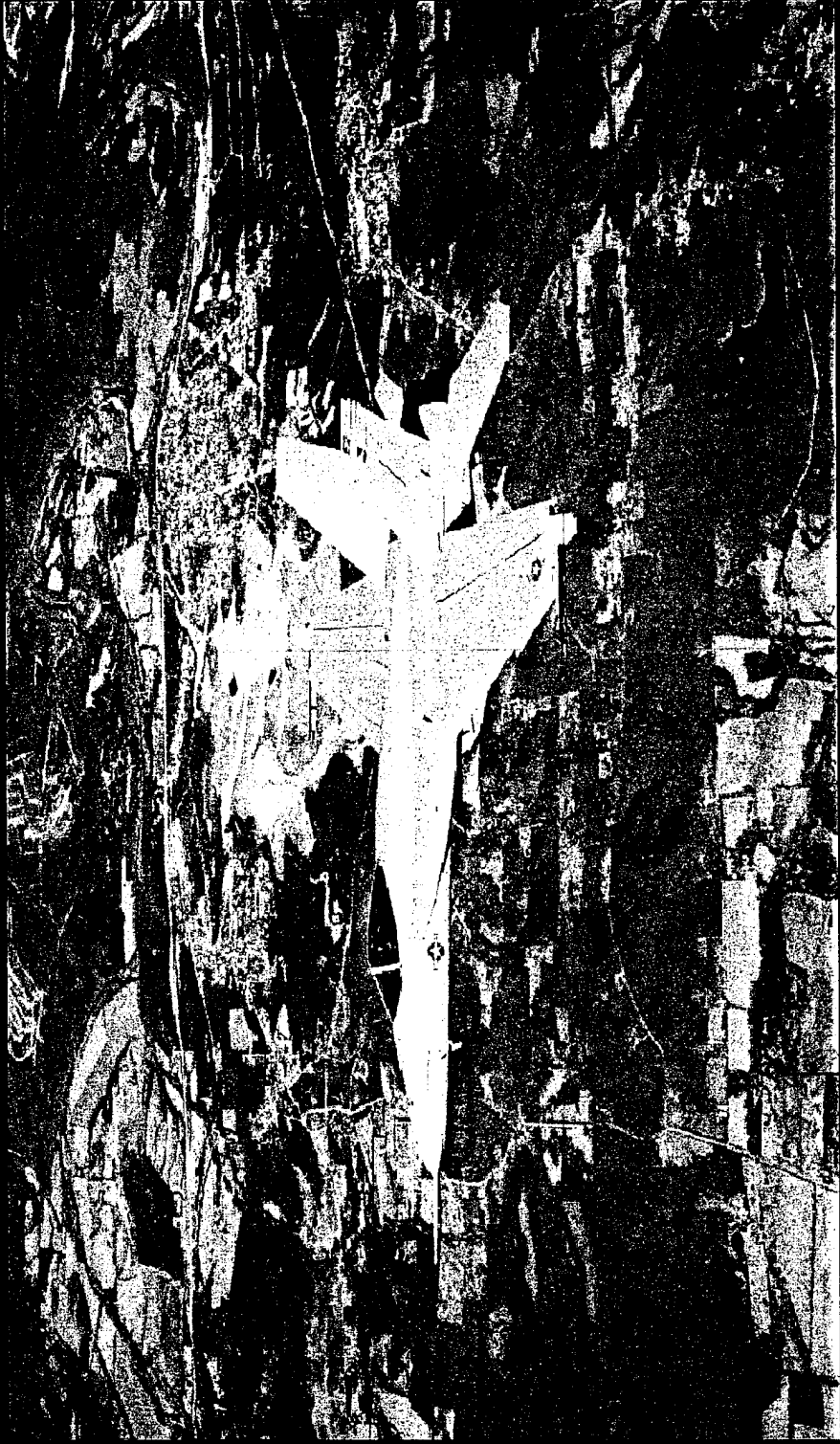


F/A-18E/F Flight Test Integrated Test Team Organization

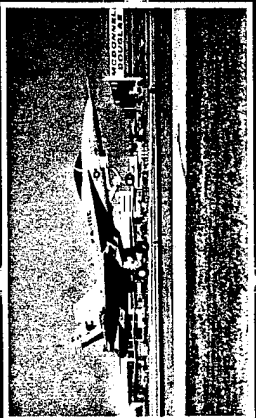




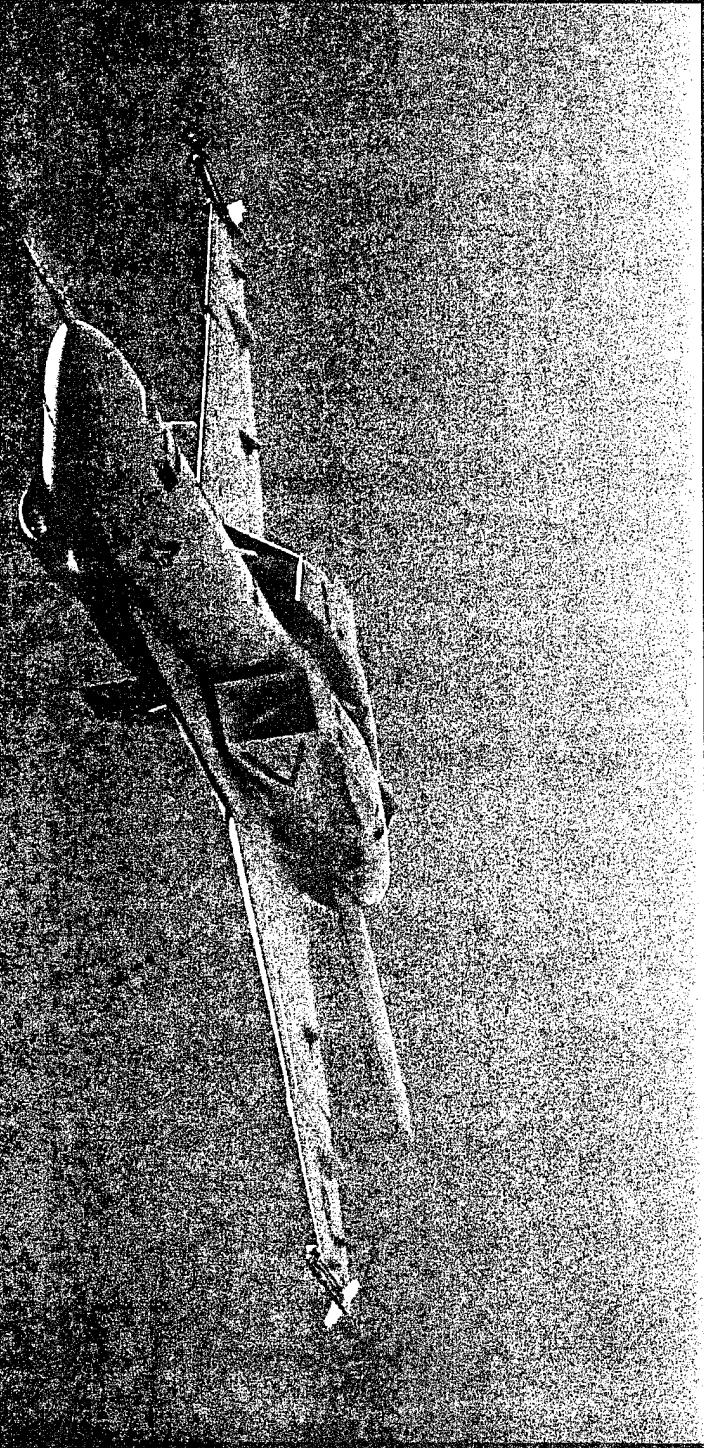
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