

GENERAL DYNAMICS

Armament Systems



37th NDIA Gun & Ammunition Symposium
Panama City, Florida April 17, 2002

A-50 Aircraft 20mm Gun System

presented by: Gordon Cromack

Agenda



- T/A-50 Aircraft
- Gun System Evolution
- System Description
- Test Program Summary
- Future Plans

T/A-50 Golden Eagle



- Advanced Trainer & Light Attack Aircraft for ROKAF & International Markets
- KAI-LM Aero Co-Development Program (Technical Support by LM Aero)
- T-50 International (TFI) for International Marketing
- Performance: Hawk / F-5 < T-50 < F-16
- Major Milestones

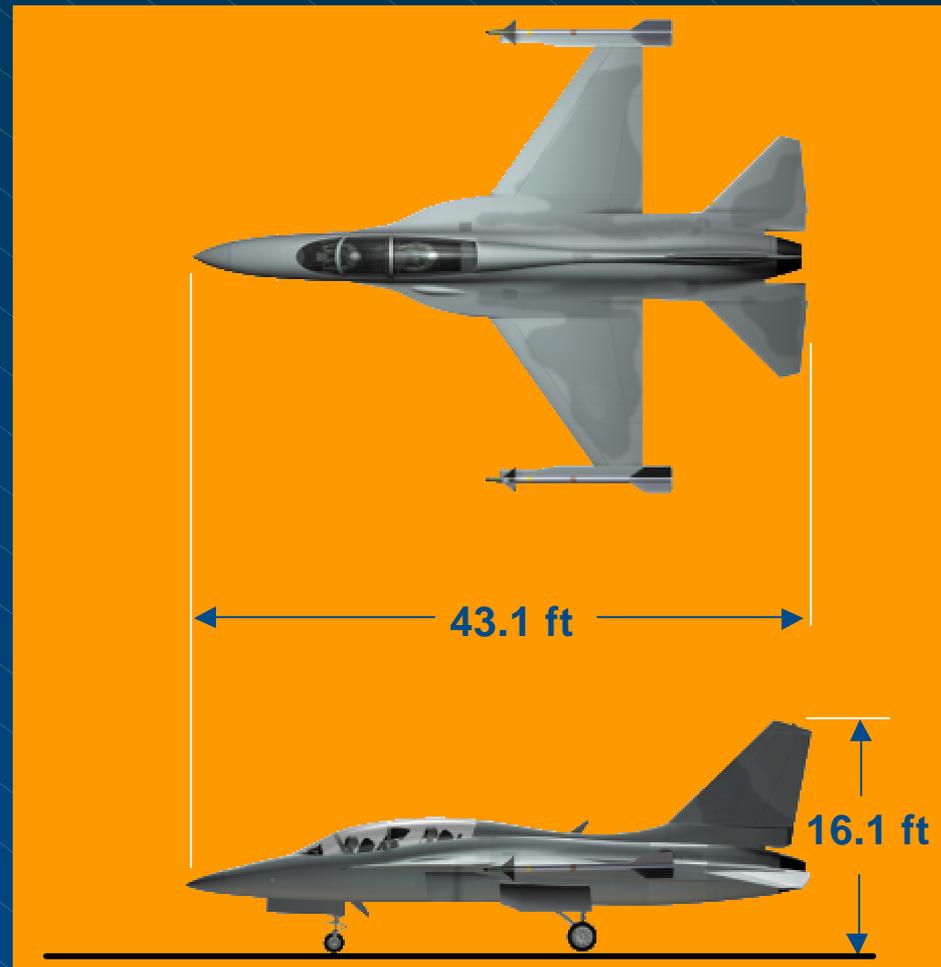
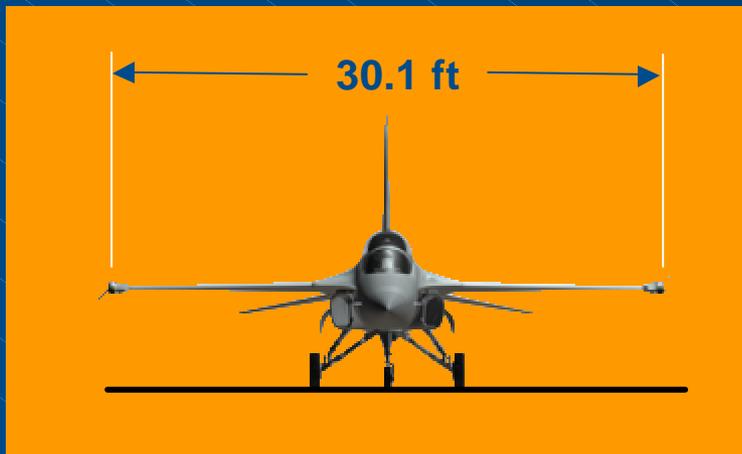
• FSD Go-Ahead	Oct 1997	Done
• OML Freeze	Aug 1998	Done
• Air Vehicle CDR	Aug 2000	Done
• Mate-Through-Delivery	Jan 2001	Done
• Roll-Out	Oct 2001	Done
• First Flight	May 2002	
• IPA	Aug 2003	

T/A-50 Characteristics



MTOGW 26,400 lb
Empty Weight 14,200 lb
Power Plant 17,700 lb
F404-GE-102

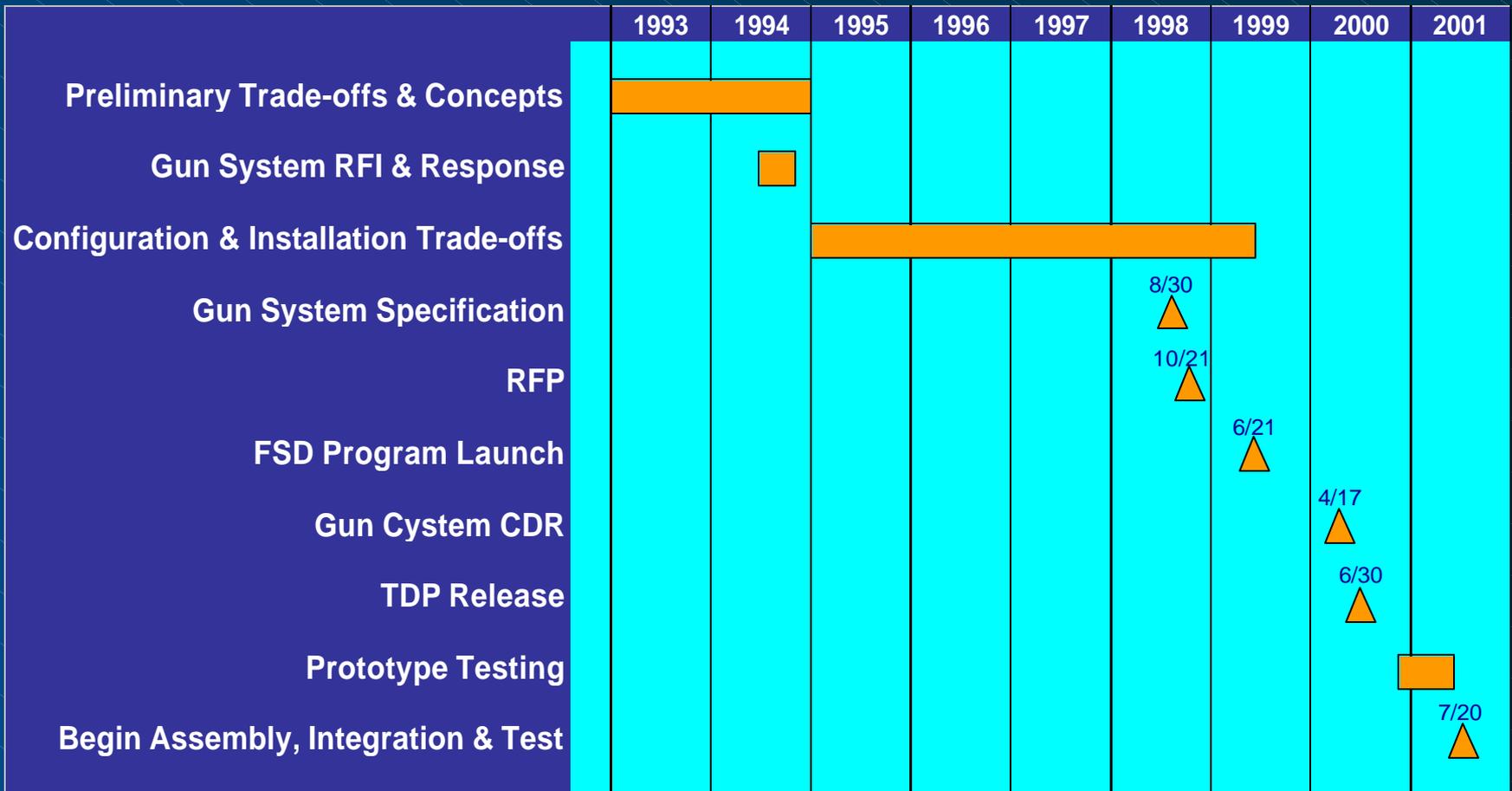
Performance:
Max Mach Mach 1.4
Service Ceiling 48,000 ft
Max RoC 37 Kft/min (S.L.)
g-Limit -3/+8 g



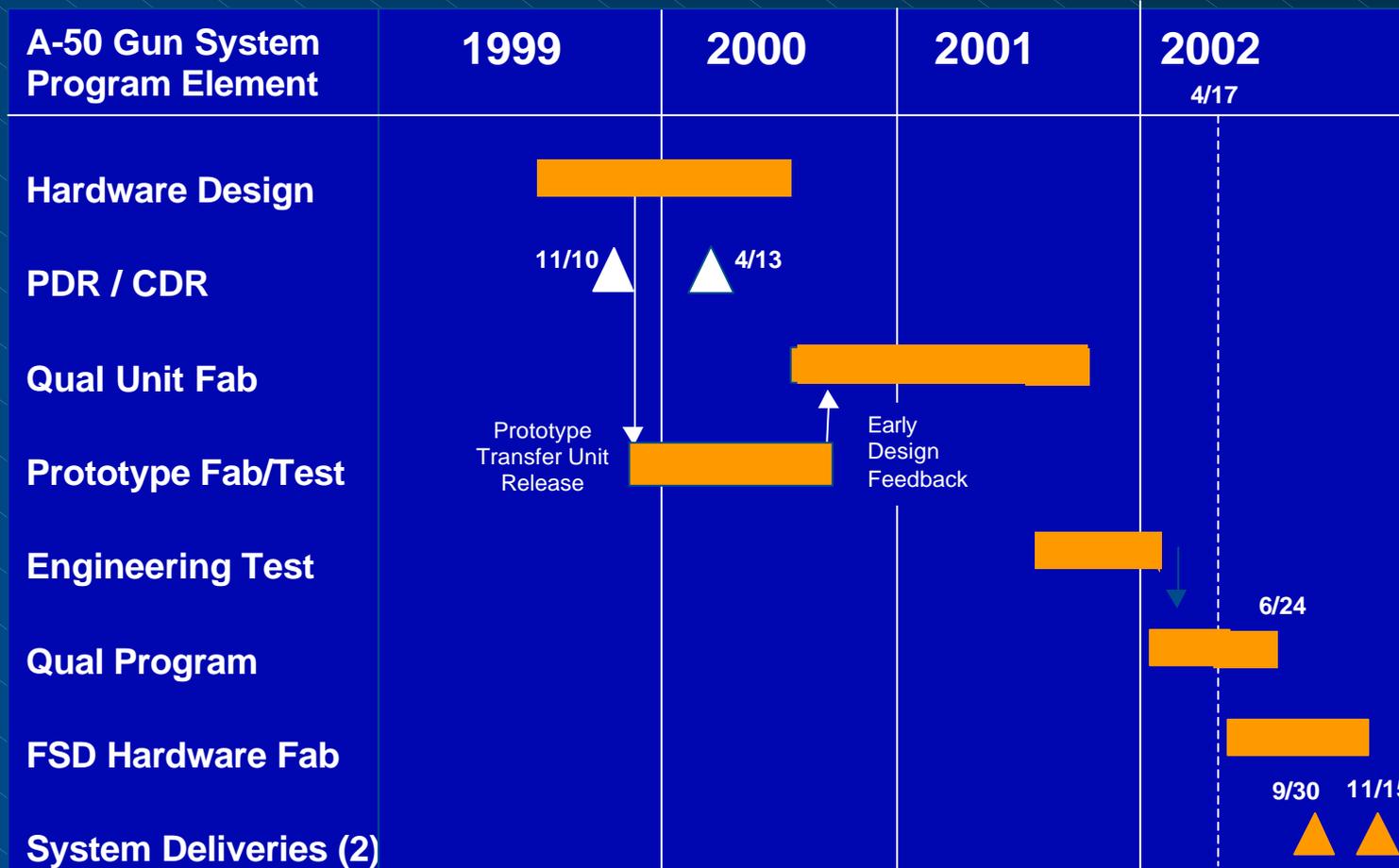
T-50 Rollout Configuration



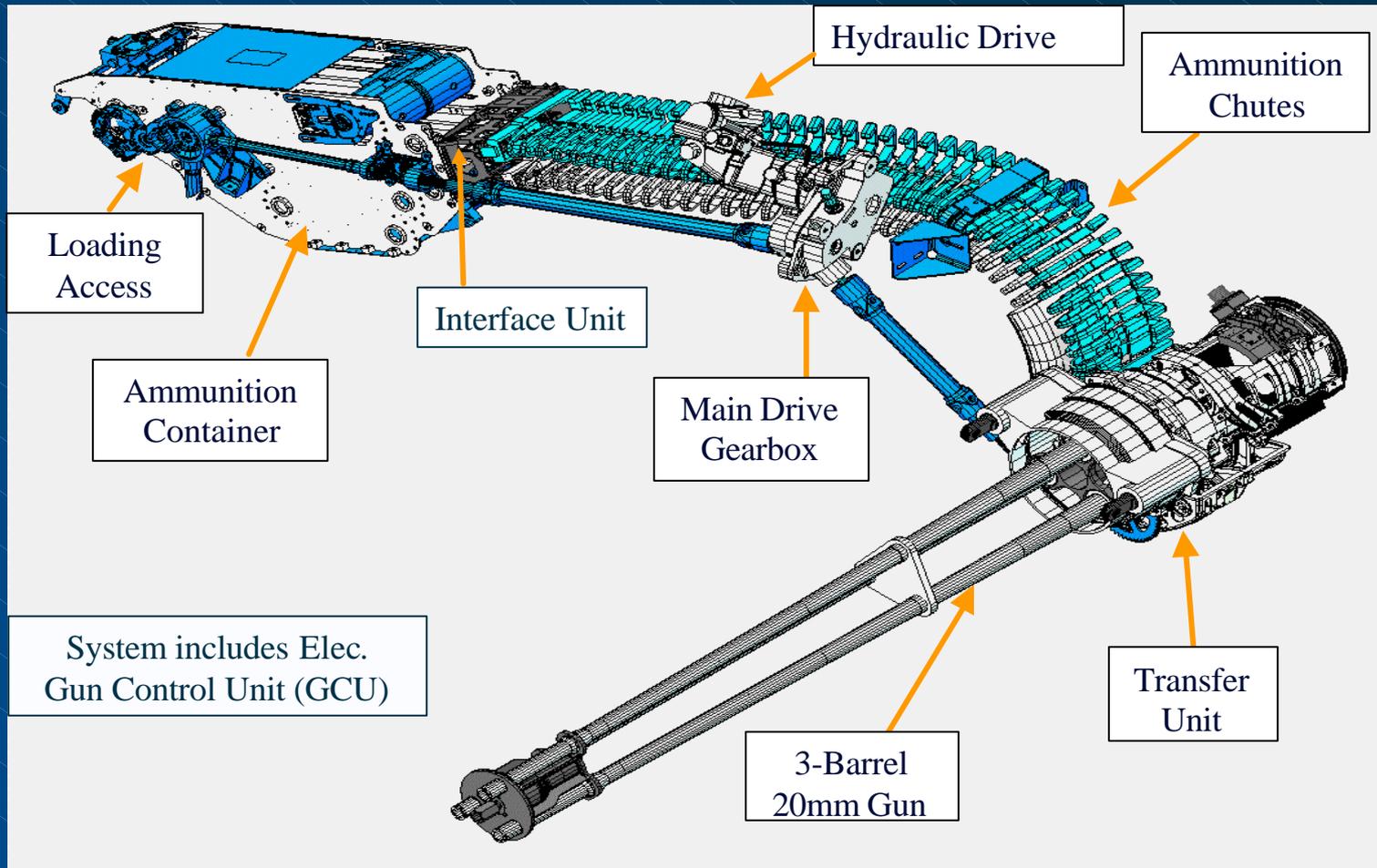
Gun System Evolution



FSD Program Schedule



System Description



Subsystem Commonality



- Hydraulic Drive
- Gun Control
- Chute Ends
- Rnds Limit Sw.
- Last Rnd Sw.
- Mag. Pick-up

F-16

F-15

- Chute Frames
- Conveyor Belt
- Ammo Carriers
- Sprockets
- Interface Unit
- Drive Shafts

A-50

NEW:

- Feeder Assy
- Muzzle Clamp
- Recoil Spindles
- Container Assy
- Loading Access

- Barrels
- Gun Housing
- End Plate
- Rotor Body
- Fwd Rotor Cstg
- Brng Retainer
- Clr Solenoid
- Clr Sector

M61A2

M197

- Mid-Bbl Clamp
- Rotor Tracks

System Characteristics



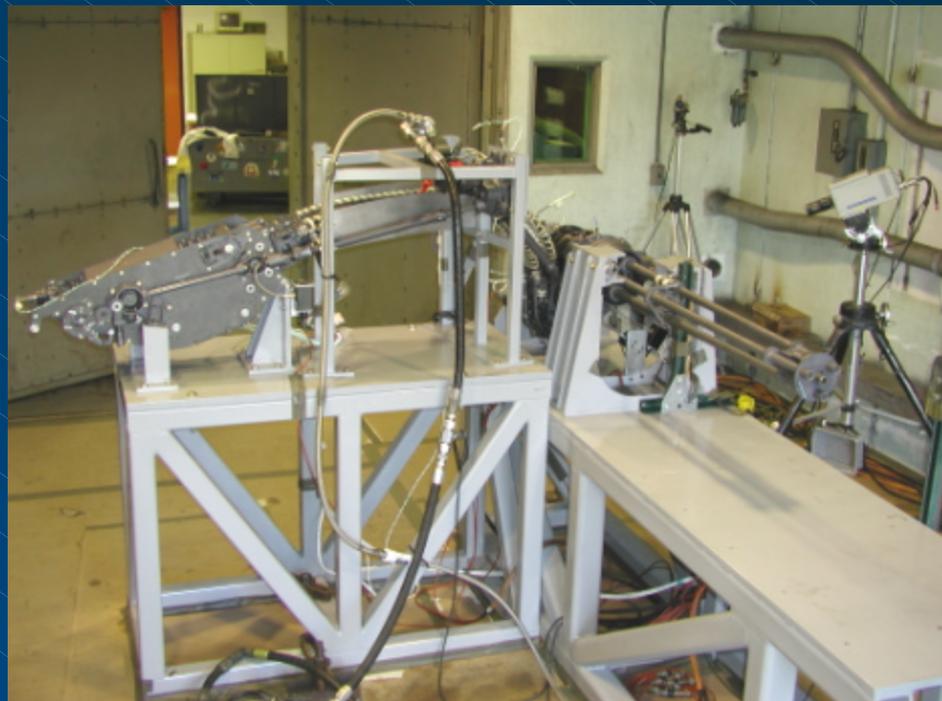
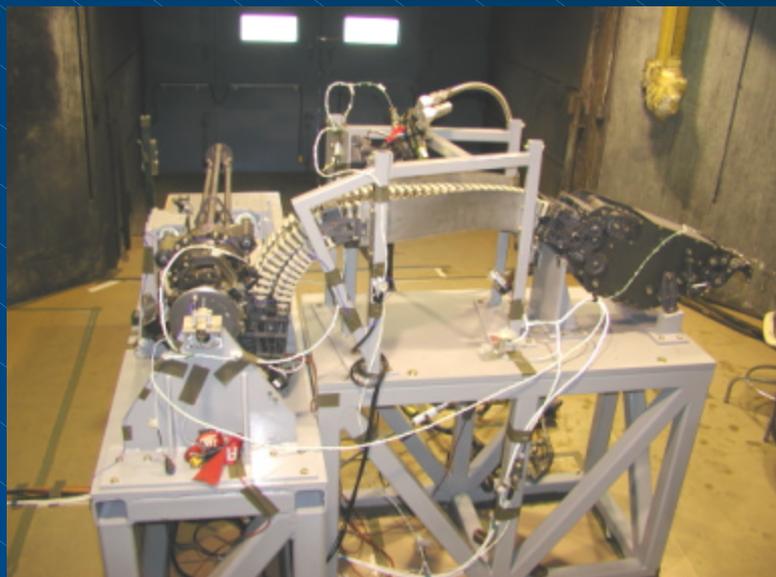
- Gun 3-Barrel Gatling, Externally Driven
- Firing Rate 3,000 Shots per Minute
- Ammo Handling System Linear Linkless, Closed Loop
- Ammo Capacity 204 Rounds
- Ammo Types TP, TP-T, HEI, HPT, Dummy
- Drive System Hydro-Mechanical
- Electrical Power 28VDC, 30 Amps Max.
115VAC, 400 Hz (Firing Circuit)
- Hydraulic Power 3,000 psi Static
20 gpm Max. Flow @ 2,400 psid
- Dispersion 8 Milliradians (80% Circle)
- System Weight (Empty) 295 Pounds

Gun System Test Program



- Engineering Development Test
 - 8,963 Rounds, 1 Stoppage
 - Completed 1/18/02
- Endurance Qual (30,000 Rounds)
 - 15,051 Rounds to Date – No Stoppages
 - High & Low Temp Completed 3/02
 - Scheduled Completion 5/3/02
- Vibration 5/14 – 6/11/02
- Functional Shock 6/11 – 6/19/02

Firing Test Installation



The Future



- Complete Gun System Qual – 6/28/02
- Aircraft Fit Check – 7/02
- Localization & Indirect Offset Agreements
- FSD System Deliveries – 4thQ 02
- Ground & Flight Test – 2003
- Production RFP & Proposal
- Initial Production
 - Expected Aircraft IPA 8/03
 - 44 A-50 & Spares
- Follow-on Production & International Sales

Questions?

