Agenda

- Aircraft Overview
- Gun System
- Changes Made
- Summary
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: F-16 > T-50 > Hawk/F-5
- Demonstrator aircraft flying
- Production to start in 2009
- 82 fighters on order thus far
T/A-50 Characteristics

- MTOGW: 26,400 lb
- Empty Weight: 14,200 lb
- Max Thrust: 17,700 lb
  - Engine: F404-GE-102
- Performance:
  - Max Speed: Mach 1.4
  - Service Ceiling: 48,000 ft
  - G-Limit: -3/+8 g

Dimensions:
- 30.1 ft
- 43.1 ft
- 16.1 ft
## Gun System Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Gun</td>
<td>3-Barrel Externally Powered 20mm Gatling</td>
</tr>
<tr>
<td>Firing Rate</td>
<td>3,000 Shots per Minute</td>
</tr>
<tr>
<td>Ammo Handling System</td>
<td>Closed Loop Linear Linkless</td>
</tr>
<tr>
<td>Ammo Capacity</td>
<td>204 Rounds</td>
</tr>
<tr>
<td>Drive System</td>
<td>Hydraulic-Mechanical</td>
</tr>
<tr>
<td>Electrical Power</td>
<td>28VDC, 30 Amps Max.</td>
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<tr>
<td></td>
<td>115VAC, 400 Hz (Firing Circuit)</td>
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<tr>
<td>Hydraulic Power</td>
<td>3,000 psi Static</td>
</tr>
<tr>
<td></td>
<td>20 gpm Max. Flow @ 2,400 psid</td>
</tr>
<tr>
<td>Dispersion</td>
<td>8 Milliradians (80% Circle)</td>
</tr>
<tr>
<td>System Weight (Empty)</td>
<td>295 Pounds</td>
</tr>
</tbody>
</table>
A-50 Gun System

System includes
Gun Control Unit (GCU)

Ammunition Container
Loading Access

Interface Unit
Hydraulic Drive

Ammunition Chutes
Main Drive Gearbox

Transfer Unit
3-Barrel 20mm Gun
Transfer Unit Roundpath

- **Feed side**
  - Rounds enter via conveyor belt
  - Extracted by feed sprocket at min velocity
  - Fed into gun bolt at max velocity

- **Unload side**
  - Spent cases or unfired rounds extracted from gun bolt by unload sprocket at max velocity
  - Deposited into conveyor belt at min velocity
Non-Circular Gearing

Feed Sprocket Shaft (600 RPM Avg)

Cluster Gear - 4-Lobe Non-Circular (750 RPM Avg)

Aft

4-Lobe Idler Gear (750 RPM Avg)

5-Lobe Gear on Turnaround Shaft (600 RPM)
Gun Heritage

- The gun was developed from the M61A2 20 mm gun
  - Three barrels removed
  - Firing rate reduced to match barrel count
- Modifications made to improve round/case handoffs
  - Gun housing
    - Clearance openings for load and unload sprockets extended
  - Bolt guide track
    - Two clearance chamfers added to center track
    - One clearance chamfer added to left forward track
Handoff Comparison

Increased diameter sprockets = improved round control at handoff
Summary

- These minor modifications to the gun allow much better round and case control during handoff
- Resulting in:
  - Less case neck denting by unload sprocket
  - Decreased likelihood of jam at round handoff
- As proven by:
  - No stoppages in the gun or transfer unit during qualification test
  - 43,000+ rounds fired on ground and in air to date by A-50 with no system chargeable stoppage
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