

Figure 14. Proposed F-16 Based UCAV Demonstrator

4.4 Derivative Concepts

Although the focus of our efforts has been on all-new vehicle and system concepts, we have also addressed near term derivative concepts. Figure 15 is an example. It shows how an early UCAV capability might be developed by putting a thick, 60 foot (18.2 m) wing on an early model F-16. This vehicle would be capable of carrying fighter size external payloads but have unrefueled range

and/or endurance that would far exceed any contemporary fighter. As a consequence we have dubbed it the Long Endurance Derivative (LED).

It would have the capability to perform long endurance, continuous combat air patrol (CAP) type missions which manned fighters currently fly but do so relatively inefficiently because of their comparatively short range and/or time-on-station. It is well known, for example, that it can take a squadron of manned fighters to maintain a CAP for a 24-hour period. As shown in Figure 16, a LED-type squadron could maintain 12 CAPs under the same conditions. In comparison to contemporary UAVs, the LED would be able to perform missions which are not possible today because of payload and/or power and cooling constraints.

5. FUTURE FORCE MIX

One of the key issues facing those working UCAV concepts and technology has been the question of what, if anything, the system concept might be called upon to do in the future. Our first inclination was to survey the literature for guidance. Nothing substantive, however, was found. Therefore, we elected to try to answer the question ourselves. We had former operators on our IPT and we took on the subject using their background and experience and lessons learned from our UCAV system simulator.

<p>Affordability Features</p> <ul style="list-style-type: none"> Block 15 Fuselage/Tail/Systems Simple Aluminum Wing F-16 Compatible Logistics <p>Affordability Metrics</p> <table> <tr><td>Development Cost:</td><td><100M</td></tr> <tr><td>Unit Cost:</td><td><5M</td></tr> <tr><td>Operating Cost (per FH):</td><td><\$2200</td></tr> <tr><td>Sortie Rate:</td><td>2-3/Day</td></tr> <tr><td>Peacetime Manning:</td><td>75/Sqdn</td></tr> <tr><td>Combat Manning:</td><td>200/Sqdn</td></tr> <tr><td>Deployment Footprint:</td><td>TBD</td></tr> </table>	Development Cost:	<100M	Unit Cost:	<5M	Operating Cost (per FH):	<\$2200	Sortie Rate:	2-3/Day	Peacetime Manning:	75/Sqdn	Combat Manning:	200/Sqdn	Deployment Footprint:	TBD		<p>Design Data</p> <table> <tr><td>Wingspan</td><td>60 ft.</td></tr> <tr><td>Empty Weight</td><td>15,357 lb.</td></tr> <tr><td>Operating Weight</td><td>37,500 lb.</td></tr> <tr><td>Fuel Capacity</td><td>Up to 21,900 lb.</td></tr> <tr><td>HARM Mission Endurance</td><td>10+ hrs. w/ 2 Missiles</td></tr> <tr><td>LOCAAS Mission Endurance</td><td>6+ hrs. w/ 84 Weapons</td></tr> <tr><td>AMRAAM Mission Endurance</td><td>9+ hrs. w/ 8 AIM-120</td></tr> </table>	Wingspan	60 ft.	Empty Weight	15,357 lb.	Operating Weight	37,500 lb.	Fuel Capacity	Up to 21,900 lb.	HARM Mission Endurance	10+ hrs. w/ 2 Missiles	LOCAAS Mission Endurance	6+ hrs. w/ 84 Weapons	AMRAAM Mission Endurance	9+ hrs. w/ 8 AIM-120
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Figure 15. F-16 Based Long Endurance Derivative

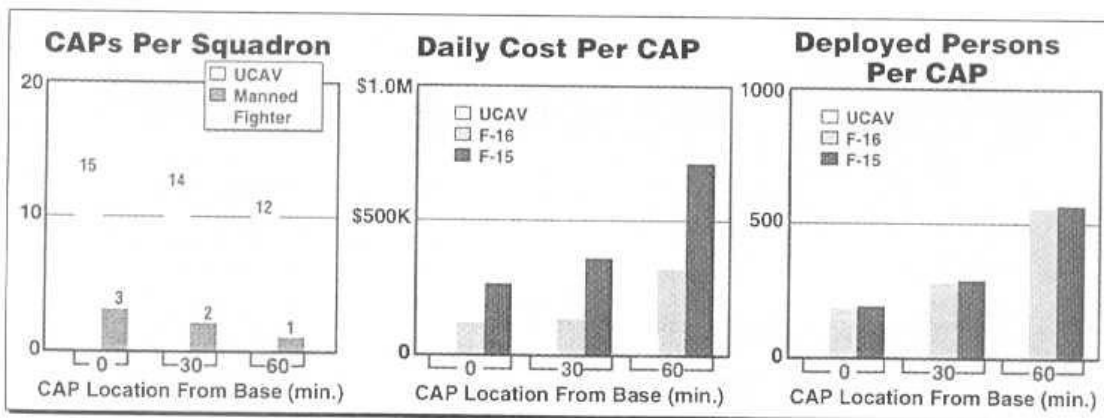


Figure 16. Long Endurance CAP Capabilities