OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

#101

27 MAR 1984

RESEARCH AND ENGINEERING

MEMORANDUM THRU ASSISTANT DEPUTY UNDER SECRETARY OF DEFENSE (TACTICAL WARFARE PROGRAMS) Ea 26 Mar 84

FOR CHIEF, SECURITY POLICY AND REVIEW DIVISION

REFERENCE: HASC R&D Subcommittee 1 Mar 84 (afternoon)

Attached herewith is(are):

_____ Corrections (editorial and technical)

_____ Security Classification

__X__ Answers to Question(s) p.9 line 207 TWP:031203

_____ Insert(s)

to the Congressional Testimony identified in above cited reference. This response is subject to the following caveat(s):

Page determined to be Unclassified
Reviewed Chief, RDD, WHS
IAW EO 13526, Section 3.5
Date: DEC 07 2017

WALTER H. SQUIRE
Special Assistant
DUSD(TWP)

Office of the Secretary of Defense 5 U.S.C. §552 +
Chief, RDD, ESD, WHS
Date: 07DEC2017 Authority: EO 13526
Declassify: _____ Deny in Full: _____
Declassify in Part: X
Reason: 3.3(b)(1),(4)
MDR: 16 -M- 0971

16-M-0971

INSERT FOR THE RECORD					
HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X HOUSE / SENATE	ARMED SERVICES COMMITTEE	HOUSE / SENATE	OTHER
HEARING DATE: 1 March 1984	TRANSCRIPT PAGE NO.: 9	LINE NO.: 207	INSERT NO.:		

Characteristics and Performance of C-5B and C-17A Aircraft

The C-17A is planned for long-term modernization of the Military Airlift Command fleet to augment the airlift capabilities of the C-5A/B, C-141B, and C-130. The C-17 is designed for intertheater and intratheater airlift of military cargo, including outsize and oversize, over intertheater ranges directly to forward area airfields and thereby significantly improves airlift responsiveness. In addition, the C-17A has reduced life cycle costs, reduced manpower requirements, and improved survivability as compared to other comparable aircraft in the fleet.

The C-5B program to produce 50 aircraft was initiated in early FY83 to provide an urgently needed near-term increase in intertheater airlift capability to supplement the C-5A and C-141B fleet of the Military Airlift Command.

The C-5A was designed in accordance with the Air Force Mission Statement as a basic long range aircraft for rapid airlift of military combat equipment, including outsize and oversize, for direct delivery from CONUS bases or rear marshalling areas to austere airfields in objective areas employing airdrop or airland delivery.

Characteristics and performance of the C-5B and C-17A are summarized in the following table. The current estimates of C-5B operational performance are based on C-5A 1C-5A-1-1 flight handbook data and operations of the rewinged C-5A. The C-17A operational performance estimates are based on calculations, wind tunnel tests of scale models of the C-17A, and contractor tests of the Pratt and Whitney 2037 engine.

The major advantages of the C-17 are:

1. The ability to use a much higher percentage of the airfields in a selected region of interest than the C-5 can use; this makes the C-17 far more useful for direct delivery.

2. The ability of a force of C-17s to deliver about four times as much cargo per day as a force of C-5s to a forward area airfield typical of those usable by C-17 and C-5 under the ground rules stated. It should be noted that about four times as many C-17s as C-5s would be used to provide the maximum throughput to this airfield since the airfield parking area limits the number of C-5s that can be used.

The major advantage of the C-5 is its ability to deliver larger amounts of cargo of all types per sortie to suitable fields.

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Reviewed Chief, RDD, WHS
IAW EO 13526, Section 3.5
Date: DEC 0 7 2017

OFFICE: OUSDRE/TWP/NW&M								
ACTION OFFICER/EXTENSION: Mr. C. F. Horton, x72423								DATE PREPARED: 27 March 1984
COORDINATION								
OFFICE	AF/RDQL							
NAME	[illegible]							
DATE	21 March '84							

DD FORM 1 NOV 77 2136

GPO : 1981 O - 352-306

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HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X HOUSE / SENATE	ARMED SERVICES COMMITTEE	HOUSE / SENATE	OTHER
HEARING DATE: 1 March 84	TRANSCRIPT PAGE NO.: p.9	LINE NO.: 207	INSERT NO.:		

Characteristics and Performance of C-5B and C-17A Aircraft

	C-5B	C-17A
Maximum gross takeoff weight (lb)	769,000	570,000
Maximum payload at 2.25g (lb)	261,000	172,200
Representative deployment payload (lb)1/	137,800	96,600
Minimum runway width for 180° continuous turn (ft)	143	134
Minimum runway width for 180° backup turn (ft)	NA2/	82
Ramp parking area per aircraft without backup (sq. ft)	190,000	100,000
Ramp parking area per aircraft with backup (sq. ft.)	NA2/	60,000
Cargo offload time (hours)	3.2	2
Direct delivery mission example3/:		
Maximum payload delivered to forward area airfield at an unrefueled range of 2940 nm (lb)	170,000	130,000
Takeoff distance (CONUS airfield)(ft)	7,900	6,700
Landing distance (forward area airfield) (ft)	2,000	1,650
Suitable number of airfields (%)4/	23	53
Maximum throughput of forward area airfield (tons/day)5/	600	2,700

1/ Representative deployment payloads as listed in the Airlift Master Plan approved by SECAF 29 Sept 1983.
2/ Not applicable; backup capability with reverse thrust not yet tested or estimated for C-5.
3/ The "direct delivery mission" is one for which both the C-5 and the C-17 have been designed. The example shown illustrates relative capabilities of the two aircraft. The ground rules for this example are:

- o All airfield operations (takeoff, landing, taxi, loading/unloading, and parking) for both C-5B and C-17A are restricted to paved areas only.
- o Takeoff at maximum wartime gross weight from a CONUS major airfield with payload chosen so that sufficient fuel is available within this gross weight limit for direct delivery of the payload 2940 nm from last refueling point to a forward area airfield, with sufficient fuel remaining for a 500 nm return with zero payload to a rear area airfield.
- o Ranges shown are unrefueled, standard day, zero wind, C-X reserves.
- o Takeoff distances are ground run length, sea level standard day, zero wind, zero runway slope; C-5B uses 40% flaps, engine air bleed on.

OFFICE	DATE PREPARED
OUSDRE/TWP/NW&M	
ACTION OFFICER/EXTENSION: Mr. C. F. Horton	27 March 1984

COORDINATION

OFFICE	AF/RDQL							
NAME	Maj. Evans							
DATE	27 Mar 84							

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HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X HOUSE / SENATE	ARMED SERVICES COMMITTEE	HOUSE / SENATE	OTHER
HEARING DATE: 1 March 1984	TRANSCRIPT PAGE NO.: p.9	LINE NO.: 207	INSERT NO.		

- o Landing distances are ground roll length, sea level standard day, zero wind, zero runway slope; maximum reverse thrust for C-17; no reverse thrust and 100% flaps used for C-5.
- o Fuel reserves are based on C-X RFP.

4/ In a selected region of interest, 53% of the airfields examined were suitable for sustained use by C-17 but only 23% were suitable for C-5s because of lack of a taxiway or alternatively, inadequate width paved runway for 180° turn around, and/or inadequate paved parking area. (Assumes neither C-17 nor C-5 taxis or parks on unpaved areas of airfields and that C-17 backs up to turn around on narrow runways and to require less space to park at least one aircraft, and C-5 does not back up.)

5/ Based on 50% utilization of an airfield having 468,000 square feet paved parking area (assumes neither C-17 nor C-5 parks on unpaved areas of airfield and that C-17 uses back up and C-5 does not).

OFFICE								
OUSDRE/TWP/NW&M								
ACTION OFFICER/EXTENSION: Mr. C.F. Horton							DATE PREPARED: 27 March 1984	
COORDINATION								
OFFICE	AF/RDQL							
NAME	Major W.J.Evans							
DATE	27 Mar							

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HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X	HOUSE / SENATE	ARMED SERVICES COMMITTEE	HOUSE / SENATE	OTHER

HEARING DATE	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO.	
1 March 1984	9	207		

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HEARING DATE	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO.	
1 March 1984	p.9	207		

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	HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X	HOUSE / SENATE	ARMED SERVICES COMMITTEE		HOUSE / SENATE	OTHER
HEARING DATE: 1 Mar 84		TRANSCRIPT PAGE NO.: 56		LINE NO.: 1293		INSERT NO.: 56L1293		

STRATEGIC DEFENSE INITIATIVE

(The information follows:)

Provided herewith is a copy of the interim charter of the Strategic Defense Initiative Organization.

INSERT FOR THE RECORD

	HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X	HOUSE / SENATE	ARMED SERVICES COMMITTEE	HOUSE / SENATE	OTHER

HEARING DATE	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO.	
1 Mar 84	56	1293	56L1293	

STRATEGIC DEFENSE INITIATIVE

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IAW EO 13526, Section 3.5
Date: DEC 07 2017

OFFICE								420
OUSDRE/OADEM								
ACTION OFFICER/EXTENSION								DATE PREPARED
COL. HOLMES/55413								2 May 1983

COORDINATION

OFFICE	ADEW							
NAME	Rankine							
DATE	3 May							

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HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X HOUSE / SENATE	ARMED SERVICES COMMITTEE	HOUSE / SENATE	OTHER	
HEARING DATE: 1 March 1984	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO.		Coleman #10	

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STRATEGIC DEFENSE INITIATIVE

Question: Is the Air Force interested in conducting an integrated on-orbit feasibility demonstration of the DARPA Triad Space Laser? If the program proceeds on schedule, when could such a test be conducted?

Answer: The DoD continues to pursue technology development activities and studies and analyses that are designed to support a decision in the late 1980's on whether to proceed to a system level demonstration to validate the technology being developed for space based lasers. These activities are described in the 1982 Space Laser Program Plan prepared at the request of Congress and approved by the Secretary of Defense in June, 1982. Some changes in the planned activities have been made necessary by the level of funding appropriated in FY 1983 and 1984, but the major demonstrations of technology readiness embodied in the DARPA Triad activities (Alpha — the beam generator, LODE — the beam control subsystem, and Talon Gold — the acquisition, tracking and pointing subsystem) continue on approximately the same schedule as described in the 1982 plan.

OSD 3.3(b)(4)
MDA 3.3(b)(4)

These space laser activities are being subsumed into the Strategic Defense Initiative (SDI). In doing so, the DoD will place greater emphasis on the ballistic missile defense mission application, and will expand the technology efforts somewhat to meet the more stringent BMD performance needs and to enhance the relevance of the technology base activities conducted under the Space Laser Program Plan to other SDI activities. Such changes are not expected to have a major impact on the schedule of the baseline technology demonstrations of the Triad, since the Alpha, LODE, and Talon Gold are demonstrations of generic technologies [redacted] typically identified with the Triad.

Successful completion of the baseline Triad activities in 1988 could support a decision to proceed with an on-orbit test. In about five years from the decision to proceed (1993), we might expect to have completed the design, fabrication, and flight test of a technology validator based upon the proven designs of the Triad technology demonstrations. [redacted] Depending on the results of the current Triad test program, other configurations could be chosen.

[redacted]

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Authority: EO 13526
Chief, Records & Declass Div, WHS
Date: DEC 07 2017

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OFFICE: OUSDRE/OADEW							427	
ACTION OFFICER/EXTENSION: COL HOLMES/56413							DATE PREPARED: 2 May 1984	
COORDINATION								
OFFICE	ADEW							
NAME	[illegible]							
DATE	1 MAY							

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HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X	HOUSE / SENATE	ARMED SERVICES COMMITTEE	HOUSE / SENATE	OTHER

HEARING DATE	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO.	
1 MAR 1984	--	05	05	

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ERIS PROGRAM

QUESTION: It has been reported that one of the technical demonstrations called for by the SDI is a test of the newly named Exoatmospheric Reentry Vehicle Intercept System (ERIS) formerly called the Homing Overlay Experiment. This test is to involve the use of an airborne sensor, the Airborne Optical Adjunct, to provide guidance information to the intercept componenet of ERIS. Would such a test violate the ABM treaty provision not to utilize systems that substitute for ABM radars? (Include in your response in a description of the ERIS program, and how it differs from HOE).

ANSWER: The Exoatmospheric Reentry Vehicle Intercept System (ERIS) was not formerly called the Homing Overlay Experiment (HOE). The HOE program started in FY78 to demonstrate the acquisition, track, and intercept guidance accuracies needed for the nonnuclear kill (NNK) of a reentry vehicle in the exoatmosphere (Space). HOE, basically, is an experiment to test optical sensor technology.

The ERIS program, on the other hand, is a project to explore alternative approaches to interceptor designs. [In FY84, concept definition studies will be completed to be followed by the definition and approval of a functional demonstration program in FY85.] [redacted]

With regard to the SDI proposed technical demonstration, [redacted]

OSD 3.3(b)(1),(4)
MDA 3.3(b)(1),(4)

Concur in Classification as marked

MAY 4 1984

SECURITY REVIEW, ACSI, HQDA

DECLASSIFIED IN PART
Authority: EO 13526
Chief, Records & Declass Div, WHS
Date: DEC 07 2017

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OFFICE		DATE PREPARED
OUSDR&E/S&TNF/Defensive Systems		
ACTION OFFICER/EXTENSION		
L. R. DAUSIN/52680		3 APRIL 1984

COORDINATION

OFFICE	FOR S&TNF(DS)	S&TNF						
NAME	[signature]	[signature]						
DATE	4 May 84	11 May 84						

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HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X	HOUSE / SENATE	ARMED SERVICES COMMITTEE		HOUSE / SENATE	OTHER
HEARING DATE: 1 March 1984	TRANSCRIPT PAGE NO.: Added question		LINE NO.		INSERT NO.: Coleman #9		

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Question: Would an on-orbit test of TALON GOLD of the DARPA TRIAD violate the ABM Treaty? When is a test of TALON GOLD scheduled?

Answer: No. The TALON GOLD experiment is part of the DARPA TRIAD program which also includes the ALPHA chemical laser experiment and the Large Optics Demonstration Experiment (LODE). TALON GOLD is an experiment, begun in 1979, to be carried on shuttle to explore and validate technoloiges for very high precision pointing and tracking. [redacted]

OSD 3.3(b)(1),(4)
MDA 3.3(b)(1),(4)

TALON GOLD has been included under the Strategic Defense Initiative. However, TALON GOLD was formulated, and continues to be aimed at generic pointing and tracking technology. The TALON GOLD program is predicated on a number of national requirements including precision pointing and tracking used for national technical means of verification and NASA scientific experiments. TALON GOLD is not a component in any space-based weapon system, ABM or otherwise. [redacted] Such experiments are fully compliant with all US treaty commitments including the ABM Treaty and the Outer Space Treaty. The initial flight test of TALON GOLD is scheduled for 1988.

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Authority: EO 13526
Chief, Records & Declass Div, WHS
Date: DEC 0 7 2017

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OFFICE: OUSDRE/OADEW			426
ACTION OFFICER/EXTENSION: COL HOLMES/56413			DATE PREPARED: 02 April 84

COORDINATION

OFFICE	SYTNF	ADEW						
NAME	Shunk	Rankin						
DATE	28 Mar 84	29 Mar 84						

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HOUSE / SENATE	APPROPRIATIONS COMMITTEE	X	HOUSE / SENATE	ARMED SERVICES COMMITTEE		HOUSE / SENATE	OTHER	
HEARING DATE: 1 March 1984	TRANSCRIPT PAGE NO.: 57		LINE NO.: 1310		INSERT NO.:			

Mine Hunting Technology

~~CONFIDENTIAL~~

Congressman Bennett: On another subject entirely, I wonder if there are any breakthroughs, or any efforts being made to get a better way of eliminating mines from the sea?

In other words, laser or other things being utilized are looked at. It strikes me that we don't operate in this field in a very advanced manner. Are they being done in that field? Does anybody know about it?

Answer: There have been no recent technological breakthroughs in the field of mine detection/disposal. Tests have been made to evaluate lasers for various missions and transmissivity in clear sea water makes them reasonable candidates for some functions. Unfortunately the coastal waters where mines are often encountered are characterized by extreme turbidity, especially at or near the bottom. This condition severely limits the utility of laser systems or underwater television systems to tens of feet. Our program for the detection and neutralization of mines is robust and balanced. It includes the development of a new generation acoustic mine hunting system for the recently authorized classes of mine hunting ships, as well as procurement of the recently developed mine neutralization vehicle (MNV). The MNV includes both acoustic and underwater television capability. In addition, the Navy is pursuing a program of channel mapping and clearance to eliminate or map mine-like objects in approaches to selected US ports. While we remain alert to the possibility of a technological breakthrough, we are following a strategy of a balanced evolutionary approach to this critical problem.

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[redacted]

OFFICE: OUSDRE/TWP/NW&M								
ACTION OFFICER/EXTENSION: Mr. Robert P. Delaney, x55531							DATE PREPARED: 19 March 1984	
COORDINATION								
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	SENATE			SENATE			SENATE	

HEARING DATE	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO.	
1 March 1984	57	1310		

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Chief, Records & Declass Div, WHS
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ACTION OFFICER/EXTENSION		DATE PREPARED
Mr. Robert P. Delaney, x65531		19 March 1984

COORDINATION

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NAME								
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