

The original documents are located in Box 11, folder “Defense - Enforcer Close Air Support Aircraft” of the John Marsh Files at the Gerald R. Ford Presidential Library.

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JAMES R. CALLOWAY
 CHIEF COUNSEL AND STAFF DIRECTOR

United States Senate

COMMITTEE ON APPROPRIATIONS
 WASHINGTON, D.C. 20510

July 19, 1974

The Honorable James R. Schlesinger
 Secretary of Defense
 The Pentagon
 Washington, D. C. 20301

Dear Mr. Secretary:

You have recently asked for the cooperation of Congress in holding down excess defense costs. As Members of the Senate, intensely interested not only in economy but also military effectiveness, we strongly recommend that you personally initiate action to test fly the Enforcer close air support aircraft.

It is our belief that the Enforcer promises such an attractive combination of economy and effectiveness that it should not be cast aside by Service biases.

We are well aware of the current viewpoint in the Air Force that they see no role for the Enforcer considering projected aircraft inventories. With limited force levels and current commitments to favored programs, that reaction is not unexpected.

It could be dangerously parochial, however, if it perpetuates an attitude of inflexibility to promising developments.

The Enforcer has impressive credentials. Secretary Clements and Dr. Currie agree that the Enforcer meets its claimed performance levels and that cost estimates are near the mark. Given that and the evaluation conducted by the Naval Air Systems Command, how can we afford not to take the final step and flight test this aircraft?

If it can be produced for under \$1 million per unit, if it can operate effectively in a tank dominated battlefield, if it can fly from unimproved fields with substantial range and ordnance, then the Defense Department would be seriously remiss if this weapon system were not given a fair and impartial flight test.

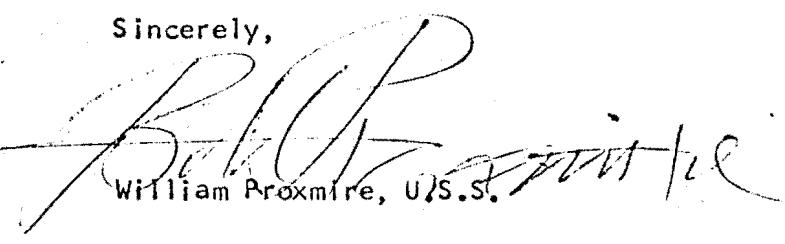
You have authority to transfer certain Department of Defense Appropriations under Section 735 of the FY 1974 Defense Appropriations Bill, subject to prior approval and the reprogramming process. We urge you to consider using this authority or other means to validate contractor claims and pinpoint potential applications.

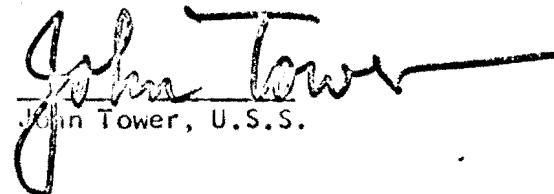
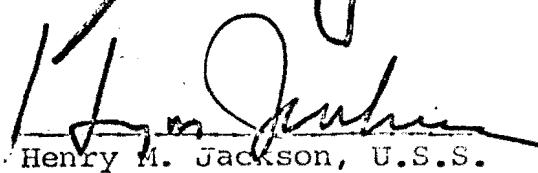


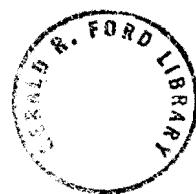
The Honorable James R. Schlesinger
July 19, 1974
Page 2

Mr. Secretary, your careful consideration of this matter and a report back on your decision will be appreciated. Both leaders of the Armed Services Committee, Senator Stennis and Congressman Hebert, have stated they would support a funding request.

Sincerely,

 
Strom Thurmond, U.S.S. William Proxmire, U.S.S.

Thomas McIntyre U.S.S.

John Tower, U.S.S.

Henry M. Jackson, U.S.S.



Maury, Hon. John M.

F: "Enforcer" folder

October 16, 1974

Honorable John M. Maury
Assistant Secretary of Defense
(Legislative Affairs)
Department of Defense
Washington, D. C. 20301

Dear Mr. Secretary:

This is to confirm Mr. Anthony R. Battista's verbal request to the Services to initiate the requirements study delineated in the attached memorandum. I trust that you will coordinate this request with the three Services and the Office of the Director, Defense Research and Engineering.

Please note the Committee's request for the study results by November 15, 1974.

Sincerely,

Frank M. Slatinskic
Chief Counsel

Enclosure



October 16, 1974

MEMORANDUM FOR: Mr. Frank M. Slatinshek, Chief Counsel
FROM: Mr. Anthony R. Battista, Professional Staff Member
Subject: Enforcer aircraft

August

On October 8, 1974 the Research and Development Subcommittee received a briefing on the Enforcer aircraft from Mr. David B. Lindsay, its designer and developer. The major considerations that emanated from the briefing were:

(1) The Enforcer aircraft is not a competitor to the A-10 but is considered by Mr. Lindsay to be a valuable supplement to the A-10 in a high-low mix environment.

(2) Several deficiencies in the Enforcer aircraft that were delineated during the Pave Cain evaluation have either been corrected or have received adequate consideration for correction.

(3) There is every reason to believe, based upon previous Department of Defense studies, that the performance parameters of the Enforcer aircraft are in accordance with Mr. Lindsay's claims and expectations.

Concurrent with this briefing, General David C. Jones, Chief of Staff, U.S. Air Force, informed Mr. Lindsay by letter that General Stewart would assemble an evaluation team to review the Air Force requirements for such an aircraft. Since that time, the Air Force has informed Chairman Price and me that progress was being made in this evaluation. This was confirmed by Mr. Edward Sles, a representative of Mr. Lindsay.

On October 3, the Subcommittee met informally to discuss the status of the evaluation and to decide what, if any, action would be taken. Several Members indicated their desire to have the requirements for an aircraft such as the Enforcer studied on a tri-service basis. Chairman Price concurred and directed me to request each of



the Services to assess their requirements for an aircraft with a performance envelope similar to that of the Enforcer. Further, the tri-services must review and reaffirm or refute the conclusions of the Close Air Support studies of 1971 that were conducted by the Department of Defense.

In accordance with Chairman Price's request, I have informed the following people to provide the results of their requirements study to the Subcommittee by November 15, 1974:

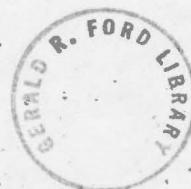
Captain R. T. Manning (Navy OIA);

Lt. Colonel Robert P. St. Louis (Army OIA);

Colonel Farrell D. Whitaker (Air Force OIA); and

Captain M. W. Comend, USA (Assistant Director, Air Warfare, DORSE).

Anthony R. Battista
Professional Staff Member



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Vol. 69, No. 27

Wednesday, October 9, 1974

Page 209

PENTAGON TO REPORT TO HOUSE UNIT ON TRI-SERVICE NEED FOR ENFORCER AIRCRAFT

The Pentagon is to report after the November elections to the House Armed Services R&D subcommittee on Army, Navy/Marine and Air Force requirements for the Enforcer aircraft, a turbo-prop plane based on the North American Mustang fighter.

The review is being conducted at the request of the House unit, which apparently has felt that an Air Force-only study of the Enforcer might not be broad enough. The unit met informally late last week.

The Air Force has been taking a fresh look at the Enforcer since this summer, when the House Armed Services R&D group determined in a hearing that it is not a competitor for the Fairchild Republic A-10, and that it can do everything its designer and backer, pilot/editor David B. Lindsay of Sarasota, Fla., says it can.

The Air Force, following the request of Rep. Melvin Price (D-Ill.), chairman of the House unit, and on orders from Air Force Chief of Staff Gen. David Jones, assembled a highly competent team of observers and technicians to restudy the aircraft, which Air Force officials earlier said was not suitable for AF missions.

Lindsay and representatives of the team will meet today in Atlanta to discuss the team's findings. Involved in the Enforcer program is Lockheed-Georgia, which would produce the plane for U.S. and offshore markets if it is approved.

The Air Force study will be passed on to the House R&D unit, which will compare it to the broader Pentagon tri-service evaluation. Sources said the six-week period that the Pentagon has to prepare an Enforcer requirements study is not too short, since the aircraft has been evaluated before, notably in the Air Force's Pave Coin program several years ago.

On the strength of the August 8 House Armed Services R&D subcommittee Enforcer hearing, at which Lindsay testified, three members of the group indicated that they would have no objection to joining five senators in urging Defense Secretary James Schlesinger to reprogram funds for flight testing of the aircraft. They are Reps. William Dickinson (R-Ala.), Richard Ichord (D-Mo.), and Floyd Spence (R-S.C.).

The five senators backing Enforcer flight testing are: William Proxmire (D-Wis.), vice chairman of the Joint Economic Committee; Henry M. Jackson (D-Wash.), a member of the Armed Services Committee; Strom Thurmond (R-S.C.), ranking minority member of the Armed Services Committee, and Thomas McIntyre (D-N.H.), chairman of the Armed Services R&D subcommittee.

Meanwhile, Air Force tests have confirmed the Enforcer's capability to use the Hughes Maverick missile and to carry the Maverick cockpit display used in the A-10. It also can use the Elliott-Marconi head-up display used by the McDonnell Douglas A-4M, and has been proven compatible with the Stencel ejection seat, although the "Yankee" model now in use is adequate.

Tests with wing-tip mounted 106 mm recoilless rifles have been terminated for reasons that were unclear at presstime yesterday.

* * *



May 6, 1974

CONGRESSIONAL RECORD — SENATE

S 7067

	Number of loans	Amount
e. Many develop w. water sys- tems for such loans (mostly ownership and rents from Fm) housing loans (mostly in- administered housing)	7,764	\$60,021,000
ity and Tu- prominent	27,181	250,462,000
has madn addition to these loans, we have to admitt help from EPA, the Small Business has been ministration, HUD, and other Federal p receivedencies.	267	37,529,000

ing from course, this sounds all well and lopment Ad. But we have a long ways to go. The Senate ke community sewer and water sys- and Forests. A 1969 FHA survey indicated that act togetherbama had 326 communities without, particularly prg needing, a central water system and do for Alai needing a central sewer system. Ad- assistancionally, the survey indicated 194 of been usec State's communities with central wa- he act ha: systems needed to improve or expand and coordinate systems. And that 68 existing sewer capacity items needed improving or expanding. Establishndications are that the turnaround at Secretant got underway in Alabama several d Erwin, ays ago is becoming a national growth several timtern.

ed by the mass migration of rural people bers Homurban centers in search of employ- any commnt is slowing. Rural job opportunities, pvement Aespecially in manufacturing, are increas- These in faster than urban job opportunities. er systemness leaders are increasingly ex- parks, holding their countryside installations of mes from nts, offices, laboratories, and distribu- the taxing facilities. Urban areas are expand- y made in their efforts to limit further growth. elsewhere. rveys show that country living is pre- ms of rured by twice as many people as cur- vate sectatly live there. And farmers and other techniqueal people have found that family scat- will be inding because of a dearth of local jobs, rantees. Something that they would like to pre- antee devt wherever possible.

private leOne top priority of rural development my loss bya prosperous agriculture. We have st enthouside good progress in this area. Realized helping p farm income in 1973 was around \$26 great poteion—up from \$14.9 billion in 1963. for profire important, we have created policies. And this international relationships which t time laste made it possible for U.S. farmers ground in take advantage of their comparative

duction efficiency by expanding ex- her commits and thereby contribution to ourated from al national well-being, including the \$424 millicsuit of peace. ed \$520 m! am hesitant to give the rural develop- housing hent movement equal importance to 58 million preservation and enhancement of the i is fundely-type farm. But next to the this year.ily-type farm objective, one can EA electricke a strong case for helping people 29 to \$618ld better their small towns and rural farmers intryside. The future of self-govern- \$1,432 miht and the evolution of quality in- itee repayamerican life are tied to it. There is one lenders, thent of major urgency that I would tee repayt to again mention. Countryside de- cific and ppment should be guided. Experience seal year 1 taught us that haphazard, topsy-like ps becomeelopment often creates unsatisfactory ars Home blems that are irreversible. My point: rural devantry people stand challenged to pre- is and grit this type of development from de- 1974, it h development. Alabama

In short, the degree to which rural de- velopment makes its contribution -to quality living depends upon the determina- nation of rural people to mold the des- tinity of their surroundings.

Not only does Alabama come first in the alphabetical listing of the 50 States—it comes first in many tangible ways. One of them is rural development. You—all of us—may be proud of our State and our heritage, glad for our accomplishments, humble about our leadership, and full of faith in our great future. We have a brand of Americans—the natural re- sources—the transportation advan- tages—the political leadership—the tra- ditions, experiences, and patterns to take our place among the stars.

This type of leadership was recognized by USDA when it awarded last year to the Alabama—USDA Rural Development Council—its Superior Service Award. The citation mentioned:

For effective leadership in helping rural people of Alabama organize, define local problems, determine priorities and program structures, and carry out a balanced program to improve their quality of living.

And, last but not least, we may take pride in our capacity to produce champion- ship football teams.

ENFORCER AIRCRAFT

Mr. THURMOND. Mr. President, a number of Members of Congress have expressed an interest in a flight test of a privately developed aircraft designed to provide close air support for ground troops.

This aircraft, known as the Enforcer, may or may not have an application for United States or allied forces, but it is the view of many that such application cannot be determined without a flight test.

Chairman GEORGE MAHON, of the House Appropriations Defense Subcom- mittee, has invited the developer of the Enforcer to testify before the subcom- mittee this month. Hopefully this testimony will further justify the desirability of a flight test.

An editorial reference the interest in the Enforcer being accorded such a test appeared in the April 29, 1974, issue of the Hartsville Messenger.

Mr. President, I ask unanimous con- sent that this editorial be printed in the RECORD.

There being no objection, the editorial was ordered to be printed in the RECORD, as follows:

ENFORCER AIRCRAFT

WASHINGTON, D.C.—For years the Air Force has enjoyed great influence on Capitol Hill. The Air Forces has accommodated legislators with jet flights and special attention. The Air Force has had the most advanced, or exotic weapons; it has often received the largest slice of the defense budget.

But in recent years Congress has too often been misled. Our best fighter is much slower than the Russian Foxbat. There are ques- tions about the new B-1 bomber. There are strong doubts about the A-10, a so-called close support aircraft built around a new gun, as yet unproven in sustained use. (Hundreds of millions of the taxpayers' money have already been spent on it.)

Congress is beginning to react. Despite all the favors and attention of the Air Force

"lobby," the glamor is wearing thin. The best example is the growing concern of many Senators and Congressmen over the Force's continued blocking of a flight test of a promising, privately-developed close-support aircraft, which costs only a fourth what the A-10 will cost.

To date, quite a bi-partisan array of Sen- ators and Congressmen have asked Deputy Secretary of Defense William Clements to order a flight test of the Enforcer. The Air Force has managed, thus far, to block action. One reason may be this is the very weapon it should have equipped South Viet- nam's Air Force with, and didn't. Some feel the Air Force's failure to Vietnamize the air war is a scandal, a failure to carry out the President's orders.

Senators Strom Thurmond (R-SC), John Tower (R-Tex), Henry Jackson (D-Wash), Thomas McIntyre (D-NH), John Stennis (D-Miss), Sam Nunn (D-Ga), Lawton Chiles (D-Fla), plus Congressmen Bob Sikes (D-Fla), Floyd Spence (R-SC), Bill Young (R-Fla), Charles Bennett (D-Fla), Melvin Price (D-Ill), Bryan Dorn (D-SC), Jim Ha- ley (D-Fla), Edward Hébert (D-La), George Mahon (D-Tex) have all pushed or queried the Defense Department on the Enforcer flight test question.

The Air Force has skillfully blocked every attempt to give the privately-financed aircraft that test. In addition, it has kept top defense officials ignorant of the real cost of the A-10. A year ago an Air Force general told Clements (then new in his job) the Air Force wouldn't buy any A-10's if they cost over \$1.5 million. As late as late April Clements still was telling Congress the A-10 would cost \$2.5 million! It was common knowledge at that time the cost is likely to be \$4 million. (Clements had apparently been misled and misinformed, as had many in Congress).

Now, however, Chairman George Mahon, of the House Appropriations Committee, has moved to have his Defense Subcommittee look into the situation; Congress, at least, is going to get the facts about the Enforcer.

FINANCIAL STATEMENT OF SENATOR J. GLENN BEALL, JR.

Mr. BEALL. Mr. President, in keeping with my usual practice, I am submitting a copy of my financial statement for 1973.

I ask unanimous consent that the statement be printed in the RECORD.

There being no objection, the financial statement was ordered to be printed in the RECORD, as follows:

FINANCIAL STATEMENT—SENATOR J. GLENN BEALL, JR.—DECEMBER 31, 1973

ASSETS	
Cash in bank:	
Checking accounts-----	\$8,535.73
Savings accounts-----	12,201.51
	20,737.24
Stocks and bonds (see list at- tached, Appendix A)-----	190,554.53
Life Insurance—cash surrender value -----	19,909.20
Beall, Garner & Geare, Inc. Re- tirement Trust (vested inter- est) -----	30,816.67
Real estate:	
Beall's Lane, Frostburg, Md.-----	50,000.00
Western Avenue, Chevy Chase, Md -----	80,000.00
	130,000.00
Personal property-----	20,000.00
1972 Chrysler 4 door sedan-----	2,500.00
Total -----	382,708.61

R. FORD

air warfare, puts it more plainly. "It's a nifty little airplane," he says. "But unfortunately the office of Secretary of Defense doesn't have the power to stimulate the services to have a need for the thing."

UNCOMPLICATED AND INEXPENSIVE

What intrigues Mr. Meyers and other aircraft experts is that the Enforcer is uncomplicated and inexpensive. (At an estimated \$770,000 each it would cost a lot less than the Harrier's \$4.3 million and the A10's \$3.4 million.) The Enforcer can operate from short, rough runways, stay aloft for long periods and deliver heavy firepower—ideal qualities for close-support aircraft.

The Enforcer has a speed range of 86 to 440 miles an hour and is heavily armored to protect the pilot from ground fire. It mounts six internal .50-caliber machine guns that can each spit out 1,100 rounds a minute, and it can carry 10 rockets, missiles or bombs.

"As far as shooting up people with guns or stopping tanks with missiles," Mr. Lindsay says, "we think the Enforcer will do it as well as or better than the A10 and at one-fourth the price."

In an age of sleek jets, it's true, the Enforcer hardly appears sexy. It most resembles the famed World War II P51 Mustang and has, of all things, a propeller. But Mr. Lindsay stresses that the propeller is driven by a jet engine, which should make for extreme reliability and easy maintenance.

Moreover, he contends that a jet-prop plane like the Enforcer has a significant advantage over a pure jet in flying slow-and-low cost support missions. Because most of the heat from the engine is used to turn the propeller, rather than being pushed out the rear of the engine, the Enforcer should be a lot less vulnerable to heat-seeking antiaircraft missiles, which proved so deadly in last October's Mideast war.

While the Enforcer generally draws high marks, it isn't faultless. A pilot who has flown the plane describes it as a "bit of a tail dragger." And Gen. Robert Cushman, commandant of the Marine Corps, recently wrote that the Enforcer "would provide a lesser combat capability" than light attack jets currently in the Marines' inventory, although he didn't make any detailed comparisons.

The Enforcer grew out of Mr. Lindsay's interest in restoring P51 Mustangs during the 1960s for sale to Latin American countries through the U.S. military-assistance program. Using ideas picked up from American pilots who had flown in Vietnam, Mr. Lindsay started designing the plane. In the spring of 1971, when the U.S. Air Force sought ideas for a counterinsurgency plane for the South Vietnamese, he and Piper Aircraft stepped forward with the Enforcer.

In August 1971, Air Force pilots briefly flew the Enforcer at Eglin Air Force Base, Fla. One of them, now-retired Major James Tilburg, says today: "It did as much as or more than was designed into the test plan. Technically, it didn't have all that fancy stuff. It was just good platform that could take the punishment and deliver the ordnance."

After these 1971 flights, the designer, Mr. Lindsay says, "we went back to Vero Beach and waited for an order." When nothing happened, he returned to the drawing board and kept on improving the aircraft. In early 1973, disgusted at the government's inaction, he started making the rounds of Pentagon and Capitol Hill offices in an effort to win a full-scale flight test of his plane. But all he got was a paper study—and, last month, word that there isn't any need for the Enforcer. Today he will tell the full story to the House Appropriations subcommittee on defense.

About \$3 million has gone into the development of the Enforcer, roughly one-third of it from Mr. Lindsay's pocket. A full flight

test would cost about \$6 million—money that Chairman John Stennis of the Senate Armed Services Committee has indicated would be available if requested by the Defense Department.

To Mr. Lindsay and such key legislators as Republican Sens. Barry Goldwater of Arizona and Strom Thurmond of South Carolina, it makes good sense to test the Enforcer further. In Mr. Lindsay's view, the plane would provide "damn cheap insurance" against the failure of the A10, not yet in production, and he contends that it would find a large market overseas, especially in Asia.

Perhaps Democratic Rep. Robert Sikes of Florida summed up the situation best a year ago, when he told then-Navy Secretary John Warner during a hearing:

"I have noted other instances, Mr. Secretary, where weapons systems and equipment have been offered to the services but because they were not developed by the testing service, they were given the cold shoulder. I do not think that is the proper approach."

"I think the services should be willing to test equipment that has promise. The old P51 was a great aircraft in its day. That was a long time ago. Maybe it no longer has any value. But this is a modernized version, and if it does have value, it could save the government a lot of money. We would like to have more than paper studies."

MEDICAL BENEFITS FOR OUR RETIRED MILITARY PERSONNEL

Mr. TALMADGE. Mr. President, I have watched with growing alarm the recent development of policies by the various branches of our military services to restrict or deny outright the medical benefits of our retired military personnel. This new policy comes as a great shock to me as I am sure it does indeed to those Americans who have served this great country for so many years.

Mr. President, my home State of Georgia is proud to have thousands of military retirees living within her boundaries. These dedicated Americans have either come home to their native soil or settled in Georgia upon retirement not only for the boundless opportunities we proudly offer, but also because within our State are excellent military installations representing each branch of our Armed Forces.

Now, after 20 or more years of dedicated and honorable service to the defense of this Nation, these brave men and women, who have faced the battles of three wars and remained vigilant during years of peace, are being told that strings were attached and fingers were crossed when Uncle Sam promised them the benefit of free medical care upon retirement.

I submit that such a policy is a slap in the face to these Americans, and indeed to this Congress which has for nearly 200 years raised and provided for armies to defend this Nation.

I have followed closely the past few years the struggles of our military to develop and maintain an all-volunteer force, and I sincerely hope this will be successful. To accomplish that in this day and age, however, is not an easy task, and involves not only the recruiting of dedicated young men and women,

but, more important, the retaining of their trained services once their initial enlistment has expired.

The retention of highly qualified individuals in our military has always been a rough road to travel. It has been accomplished to some degree in the past, however, because of the benefits offered while on active duty and especially those available upon retirement.

These new policies of restricting or denying some of these benefits will surely sabotage the already perilous effort to retain dedicated men and women in our armed services and may also discourage those who plan to enter the service as a career.

The potential dangers of this policy should not just concern the generals in the Pentagon. It should be of great concern to each and every American. The Founders of this great Nation made it abundantly clear that a strong and vigilant military force has to be a high priority if we are to remain a free and viable people. Such strength and vigilance will not be possible if the Nation's career military and our veterans are met at every corner of life with a pie in the face.

I understand that these new policies for medical benefits have been prompted by a shortage of doctors in the military. The Senate passed in December a measure creating cash bonuses for doctors to enter our armed services, and I earnestly hope this will help alleviate this shortage.

But, this country cannot afford, in the interim, to forsake those who have dedicated their lives to her service, and I want those in the Pentagon who formulate these policies to be well aware of the grave consequences of such action, and of my deep and abiding concern over the restriction or denial of medical benefits promised to retired military personnel.

TAX-EXEMPT BONDS

Mr. DOMINICK. Mr. President, the Office of Management and Budget has proposed implementation of some new guidelines for Federal credit policies in a draft proposal referred to as "Circular A-70." Among the proposals is included a provision which would preclude the Federal Government from guaranteeing, insuring, or subsidizing in any way State and local government bonds if the interest on such bonds is tax-exempt. This circular has provoked criticism from most State governments which use such bonds to finance such projects as higher education facilities and medical care facilities.

In my own State, our legislature has gone on record in opposition to this circular because many projects dependent on Federal assistance and involving issuance of tax-exempt bonds would be jeopardized.

Mr. President, I ask that the Colorado House Joint Resolution 104 be printed in the RECORD, and I urge my colleagues to review it carefully.

There being no objection, the joint resolution was ordered to be printed in the RECORD, as follows:

July 1, 1974

CONGRESSIONAL RECORD—Extensions of Remarks

E 4415

approval of those bodies which do have statutory jurisdiction to approve or disapprove of plant location and construction, such as the various zoning authorities, Stream Pollution Control Board, Environmental Management Board, etc.

Yours very truly,

LARRY J. WALLACE,
Chairman.

STATE BOARD OF HEALTH,
Indianapolis, Ind., May 24, 1974.
Re Power Plant Siting.
Hon. LEE H. HAMILTON,
House of Representatives, Rayburn Building,
Washington, D.C.

DEAR CONGRESSMAN HAMILTON: This action acknowledges your letter of May 15, 1974, relative to subject matter. This will serve to acknowledge similar letters directed to the Air Pollution Control Board and the Stream Pollution Control Board. We have responded to the Madison Chamber of Commerce's questions on this matter.

This office is concerned with the number of proposed plants along the Ohio adjacent to Indiana. The staff has met with two Indiana companies (Indianapolis Power & Light Company and Public Service Indiana) concerning proposed locations near Rising Sun and downstream from Madison. In addition, Indiana representatives to ORSANCO proposed that a study be undertaken of all existing and proposed plants along the Ohio River with respect to environmental factors. The ORSANCO staff, in cooperation with the Power Industry Advisory Committee to ORSANCO, is to undertake this study at once.

The Stream Pollution Control Board is concerned with discharges to watercourses with respect to temperature, water quality and consumptive use of water. Residents adjacent to proposed plants may offer comments to the Stream Board relative to these concerns. In addition the Environmental Management Board and the Air Pollution Control Board are responsible for other environmental concerns including air quality. Comment on all concerns registered with the State Board of Health will be directed to the proper Board.

We do not anticipate scheduling public hearings on this matter. However, if projects are to be considered by one of the above mentioned Boards, we will advise the local community so that requests for appearances may be made.

Sincerely,

WILLIAM T. PAYNTER, M.D.,
State Health Commissioner, Indiana
State Board of Health.

DEPARTMENT OF NATURAL RESOURCES,
Indianapolis, Ind., May 20, 1974.
Hon. LEE H. HAMILTON,
House of Representatives, Rayburn Building,
Washington, D.C.

DEAR MR. HAMILTON: This is in response to your letter of May 15, 1974 expressing the concern of citizens of the Madison, Indiana area, relative to planned and potential power plant development in the general vicinity of Madison.

As you know, the 1,303,560 KW Clifty Creek plant of the Indiana-Kentucky Electric Corporation is presently located at Madison and the 500,000 KW Ghent plant of Kentucky Utilities Company is located upstream at Ghent, Kentucky (opposite Switzerland County).

Public Service Indiana has acquired the "Marble Hill" site about six miles downstream from Madison and has announced its plans for construction of a nuclear plant thereon. At least one other Indiana utility is investigating potential sites in the general vicinity. We do not have specific knowledge of plans or proposals for plants on the Kentucky side of the river, but understand that such do exist.

The authority of this Department, through its Natural Resources Commission, relates to two general areas of power plant development. These are (1) the withdrawal of water from navigable streams (generally for cooling purposes) and (2) any plant construction in the floodway of a river or stream. This authority is exercised through a permit system.

The Commission does not normally hold "public hearings" in the usual sense of the word on permit matters, although it could do so if deemed necessary or desirable. Consideration of permit matters is normally handled at the regular monthly meetings of the Commission, at which any citizen has the right, and will be given the opportunity, to be heard on any given matter under consideration.

No formal applications for permit have yet been filed by any utility for a new plant in the Madison area and thus no time can be given as to when they will be considered by the Commission. However, any citizen may at any time request to be notified in advance of the date of Commission consideration and we will provide adequate notice so that they may be heard.

In addition to approvals by the Natural Resources Commission, permits from the Indiana Stream Pollution Control Board (with respect to water quality and solid waste disposal), the Indiana Air Pollution Control Board, and the Environmental Management Board (with respect to radiation control for nuclear plants) are also required and all these Boards provide for citizens to be heard.

Sincerely yours,

JOSEPH D. CLOUD, Director.

PUBLIC SERVICE COMMISSION,
Frankfort, Ky., May 17, 1974.
Congressman LEE H. HAMILTON,
Rayburn Building,
Washington, D.C.

DEAR CONGRESSMAN HAMILTON: Chairman William A. Logan has requested that the undersigned respond to your letter of May 15, 1974, concerning the possible construction of power plants in the vicinity of Madison, Indiana.

A utility seeking to construct such facilities in Kentucky would be required to obtain a Certificate of Convenience and Necessity from this agency—that is, authority to build the power plant. The hearing would be held at which time the Commission would consider the demand and need of service and the economic and engineering feasibility.

* * * * *

We will keep you advised.

Yours very truly,

RICHARD D. HEMAN, Jr.,

Secretary.

BUREAU OF ENVIRONMENTAL QUALITY,
Frankfort, Ky., May 31, 1974.
Hon. LEE H. HAMILTON,
Congress of the United States, House of Representatives, Rayburn Building, Washington, D.C.

DEAR MR. HAMILTON: This is in response to your letter of May 15, 1974, concerning the construction and operation of electrical generating facilities within the Commonwealth of Kentucky. At the present time our Division of Air Pollution has regulations which provide the complete review of all plans and specifications of a proposed power plant. It must be determined that the construction or modification of any such facility will be consistent with all ambient air quality standards both primary and secondary prior to the issuance of the mandatory construction permit. It is my understanding that most states have similar regulatory provisions.

Presently there are no pending applications for construction permits to construct their electrical power generating stations in Ken-

tucky, however, I have heard talk regarding the construction of several. With regard to public participation of public hearings, it is my understanding that prior to the issuance of any construction permit regarding a point source of this nature that federal regulations require a period for public comment. There are no public hearings scheduled at this time because as stated above we have no official knowledge of proposed construction.

If I can be of further assistance to you in this matter, please do not hesitate to advise.

Sincerely yours,

HERMAN D. REGAN, Jr.
Commissioner, Bureau of
Environmental Quality.

AIR FORCE CONTRADICTIONS

HON. LES ASPIN

OF WISCONSIN

IN THE HOUSE OF REPRESENTATIVES
Monday, July 1, 1974

Mr. ASPIN. Mr. Speaker, the Pentagon has given Congress contradictory and misleading information on the capabilities of a new, highly effective jet fighter—the Enforcer—which is an attractive alternative to A-10 close-air-support aircraft.

Recently released House Armed Services Committee testimony about the Enforcer presented by Air Force Gen. W. J. Evans is so misleading and in part, untrue, that I have no choice but to conclude that his actions were deliberate.

Each Enforcer costs slightly more than \$1 million while the cost of the A-10 is \$3.4 million per aircraft. Current Air Force plans include a buy of 729 A-10's to support ground combat troops at a total cost of approximately \$2.4 billion.

Mr. Speaker, General Evans told the House Armed Services Committee on April 5 that "the range of the aircraft—the Enforcer—is limited." But, Mr. Speaker, I am publicly releasing an Air Force factsheet on the Enforcer which shows that its aircraft's range is 3,075 miles—475 miles greater than the range of the A-10.

General Evans also complained that the Enforcer could not take off from short runways. The same Air Force factsheet shows that the Enforcer needs only 1,100 feet to take off compared to the A-10's 3,020 feet.

I am publicly releasing a detailed summary of all the major contradictions in the various Air Force presentations on Enforcer, including the aircraft's speed, landing distance, and number of bomb stations. With so much contradictory evidence produced by the Air Force, it seems clear that the case of the Enforcer and its rival, the A-10, should be reviewed. One possibility would be for the Air Force to conduct a flyoff between the two planes to determine which one, given its cost would be the most effective. Since each A-10 is three times more expensive than the Enforcer, the Enforcer seems to be an attractive alternative to the A-10. In fact, I think it may be difficult for the Air Force to prove that the A-10 is three times better than the Enforcer.

The Enforcer which is a single-engine jet prop, was developed by Florida pub-



July 1, 1974

lisher David Lindsay. Deputy Defense Secretary William Clements recently said that the Enforcer had "met the general performance claims made by the offeror." Mr. Clements' statement further confuses the issue because Lindsay has claimed that the Enforcer has a maximum speed of 403 knots per hour—faster than the A-10—while the Air Force says the Enforcer flies 330 knots per hour—slower than the A-10.

The only way for the Congress to determine the facts is to order a complete series of flight tests for the Enforcer and compare it to the A-10.

As many of my colleagues know, Defense Secretary James R. Schlesinger has suggested that the Pentagon should buy cheaper, more simple weapons. The Enforcer may just fit the bill for a highly effective and relatively cheap aircraft.

The Air Force's contradictions follow:

AIR FORCE CONTRADICTIONS

RANGE

Air Force Statement: "The range of the aircraft is limited." (Gen. Evans, House Armed Services Subcommittee, April 5, 1974).

Contradiction: Enforcer range is greater (3075 miles) compared to A-10's (2600 miles). (Air Force Fact Sheet, June 1974).

SURVIVABILITY

Air Force Statement: Q: Does it (Enforcer) have less survivability than the A-7?

A: I would say yes. (Gen. Evans, House Armed Services Subcommittee, April 5, 1974).

Contradiction: Detailed study by Joint Technical Co-Ordinate Group of the Naval Air Systems Command reveals that the Enforcer is less vulnerable to 23mm, 57mm and SA7 missile than A-7. (DDR&E Fact Sheet, June 1974).

TAKE-OFF

Air Force Statement: "The ability to take off from unimproved short strips with heavy bomb load is extremely limited." (Gen. Evans, House Armed Services Subcommittee, April 5, 1974).

Contradiction: Enforcer take-off distance (at full weight) is 1100 ft. compared to 3020 ft. for A-10. (Air Force Fact Sheet, June 1974).

MAXIMUM SPEED

Air Force Statement: Enforcer's maximum speed is 330 knots—slower than the A-10. (Air Force Fact Sheet, June 1974).

Contradiction: Enforcer's maximum speed is 403 knots—faster than the A-10 maximum speed of 390 knots. (David Lindsay, Enforcer Developer).

LANDING DISTANCE

Air Force Statement: Landing distance is 3000 ft. for the Enforcer at maximum weight—longer than A-10's of 2140 ft. (Air Force Fact Sheet, June 1974).

Contradiction: At normal landing weight Enforcer needs a shorter runway (880 ft.) compared to 1050 ft. for A-10. (Data provided by Air Force Office of Legislative Affairs, June 1974).

ENGINE

Air Force Statement: Enforcer will be powered by 3445 horsepower engine. (Air Force Fact Sheet, June 1974).

Contradiction: Enforcer will be powered with 2950 horsepower engine. (David Lindsay, Enforcer Developer).

BOMB STATIONS

Air Force Statement: Enforcer has 6 bomb stations. (Air Force Fact Sheet, June 1974).

Contradiction: Enforcer has 10 bomb stations. (From Air Force Office of Legislative Affairs, June 1974).

72.5 PERCENT SAY PRESIDENT SHOULD STAY

HON. EARL F. LANDGREBE

OF INDIANA

IN THE HOUSE OF REPRESENTATIVES

Monday, July 1, 1974

Mr. LANDGREBE. Mr. Speaker, a poll taken recently by the Lafayette, Ind., Journal and Courier resulted in a tremendous show of support for the President. Recent actions of the Democratic members of the Judiciary Committee will no doubt strengthen the view present in this poll, that the Watergate investigation has been a biased, vengeful attack on President Nixon and a denial of the accomplishments of his administration. I refer to the Judiciary Committee's attempt to waive the 5-minute rule for questioning impeachment hearing witnesses. Chairman RODINO's alleged comment that all 21 of the committee's Democrats would, in his estimation, support a vote of impeachment, and the refusal of the Democrats to summon all 6 of the witnesses recommended by James St. Clair, defense counsel.

I call the attention of my colleagues to the June 10 poll by quoting excerpts from the Journal and Courier. Special note should be taken of the student poll.

EXCERPTS FROM POLL

(By Robert Kriebel)

This is still Nixon Country.

Not much question about it when you sift through responses to the Journal and Courier's June 10 ballot on the question: "What Do You Think of Nixon Now?"

Out of 1,574 replies, a total of 1,143 said Nixon should stay on the job.

That's 72.5 per cent.

A total of 362 persons turned in ballots saying that President Nixon should be the object of impeachment proceedings by the Congress. This represented 23.1 per cent of those who returned ballots.

And 69 readers said the President should resign, or 4.4 per cent.

And in over 150 accompanying notes, cards and letters explaining ballots, readers went on to say Nixon has been an excellent President and critics should get off his back.

Many respondents said they felt Democrats in Congress, Communists, and the news media have combined to force the issue of Watergate into far more prominence than it is worth, and that too few people recognize Nixon Administration accomplishments or show a willingness to face real domestic issues like the rising cost of living or energy shortages.

"Never have we had a President that has done as much for our country or has been treated so dirty," one reader said.

"We appreciate what our President has done so far," wrote another. "Such as peace with honor in Vietnam, bringing home POWs, ending the draft and the leadership for world peace, to name a few."

"Last year at this time, in response to your poll," another reader wrote, "I was in full support of President Nixon."

"Today my position has not changed. There have been many new revelations since last year and I must confess I have had doubts of President Nixon's innocence several times."

"But these short moments of doubt have always been followed by long periods of full trust and confidence in my President."

A man and wife in a joint letter from Fowler wrote: "We think the President is a

great one, and it (Watergate) is all political. The news media and television are so unfair to him, especially the 'Today' television program."

"Since we take only one Journal and Courier my husband used the ballot provided," one woman wrote. "I would also like to vote and say STAY ON THE JOB! I am sick, sick, sick of Watergate."

A West Lafayette reader wrote: "It was with great wisdom and statesmanship that the founders of our great country divided the powers of government into executive, legislative and judicial departments."

"But today, not yet 200 years from our founding, our people in Washington, in fact government people everywhere, are not statesmen at all, but are a bunch of vulture-like politicians engaged in a struggle for power and picking the meat from each other's bones."

"President Nixon should stay on the job and defend the office to which he was elected."

And a Kentland woman opined: "I would like to see everyone who is investigating Mr. Nixon investigated also. So far as I know, only one perfect man has walked this earth. Right?"

Another subscriber wrote from Lafayette: "Congress should get off his back! I can't see why the taxpayers have to pay all those men to nit-pick at the President."

The heavy support for President Nixon almost duplicated the results of a Journal and Courier reader survey in June, 1973. In that one, 1,106 persons sent in ballots with 801, or 72.4 per cent, saying the President should stay on the job.

A year ago 193 persons called for resignation compared to 69 this year. Last year 112 persons recommended impeachment compared to 360 this year.

Both surveys were conducted on the same basis—that of a "straw vote" by interested readers. Neither, consequently, necessarily reflects what a more scientific sample of area residents might show.

And as in 1973, the poll itself was the object of a few comments.

One woman wrote: "May I stand up and cheer? Once for my country, once for my President, and once for the Journal and Courier for publishing this ballot for the little people."

STUDENT POLL BACKS NIXON, TOO

Lafayette area students responding to a poll favor President Nixon's staying in office.

The students took part in a nationwide student opinion poll on the question. In the Lafayette area, about 53.5 per cent favored the President's remaining in office, while 8.5 per cent were undecided.

The survey indicates that young people in this area are somewhat more favorably disposed toward the President than are students nationwide.

More than 130,000 students in all parts of the nation took part in the poll. The vast majority of the students are in grades 5 through 12.

Nationwide, students seem evenly split on the question. About 41.6 per cent felt Mr. Nixon should remain in office, 42 per cent thought it would be best for the country if he were out of office, and 16.4 per cent were undecided.

The poll was conducted by the Journal and Courier and 220 other daily newspapers in cooperation with Visual Education Consultants, Inc., of Madison, Wisconsin. The survey was part of a current events program that these newspapers give to schools in their areas. The Journal and Courier provides the program to 10 schools in this area. The program includes weekly filmstrips of news photos, together with discussion materials written on several levels of difficulty, for students for varying ages.

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BARRY GOLDWATER
ARIZONA

COMMITTEES:
AERONAUTICAL AND SPACE SCIENCES
ARMED SERVICES
PREPAREDNESS INVESTIGATING SUBCOMMITTEE
TACTICAL AIR POWER SUBCOMMITTEE
NATIONAL STOCKPILE AND NAVAL PETROLEUM
RESERVES SUBCOMMITTEE

United States Senate

WASHINGTON, D.C. 20510

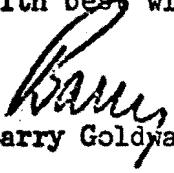
May 7, 1973

Mr. Edward H. Sims
Editor's Copy Syndicate
Post Office Box 532
Orangeburg, South Carolina 29115

Dear Ed:

It is good to know that they are going to run tests on the Enforcer and, naturally, I hope they come out well. There is no way a computer can fly an airplane. Somebody with eyes and a brain has to do that.

With best wishes,


Barry Goldwater

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T. EDWARD BRASWELL, JR., CHIEF COUNSEL AND STAFF DIRECTOR

United States Senate

COMMITTEE ON ARMED SERVICES

WASHINGTON, D.C. 20510.

March 12, 1974

Mr. Edward H. Sims
Publisher
Editor's Copy Syndicate
P. O. Box 532
Orangeburg, S. C. 29115

Dear Mr. Sims:

Thank you for your letter of March 7th with enclosures. My remarks hold firm as to the availability of this money.

With best wishes, and looking forward to receiving the papers you are sending, I am

Sincerely,



John C. Stennis
United States Senator

JCS:eh



DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D. C. 20380

IN REPLY REFER TO

AAW-3A

13110

13 APR 1973

Mr. David B. Lindsay
Enforcer Project Consultant
Piper Aircraft Corporation
Post Office Box 1719
Sarasota, Florida 33578

Dear Mr. Lindsay,

The Marine Corps has been asked to conduct an evaluation of the ENFORCER aircraft to determine its suitability for use within the Department of Defense.

The evaluation will consist of an analytical appraisal to determine the ENFORCER's operational capability, performance, survivability and costs relative to other aircraft available. This appraisal will be conducted with existing assets since no funds are available for this project. The need for flight testing of the ENFORCER will be determined following the initial analysis and evaluation.

The data listed in enclosure (1) would be helpful to this Headquarters (Code AAW) and the Naval Air Systems Command (Code 503, 506) in the evaluation. As a minimum, the data contained in paragraphs 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.10, 3.4.1, 3.4.2 and 3.7 are necessary in order to make a meaningful evaluation.

A meeting has been scheduled with the Naval Air Systems Command on 19 April 1973 to discuss specific requirements for technical data required for the evaluation. Time and place will be announced.

Marine Corps point of contact for the ENFORCER Project is LtCol. E. C. PAIGE, Jr., DC/S(AIR), Code AAW-5, OX-41729.

Your interest in providing the above data is appreciated.

Sincerely,

E. S. FRIS

MAJOR GENERAL, U. S. MARINE CORPS
DEPUTY CHIEF OF STAFF (AIR)



AAW-3A
13110

Encl: (1) Technical Information Requirements for Aircraft
Proposal, WR-94

Copy to:

DDR&E (Land Warfare, LtCol. METZKO) (W/O Encl)

CNO (OP-05, 098, 506) (W/O Encl)

CHNAVMAT (W/O Encl)

NAVAIRSYSCOM (AIR-503, 506) (W/O Encl)

Committee on Armed Services (Attn: Mr. E.B. Kinney)

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United States Senate

COMMITTEE ON ARMED SERVICES
WASHINGTON, D.C. 20510

February 15, 1973

General Robert E. Cushman
Commandant, U.S. Marine Corps
Washington, D.C. 20380

Dear General Cushman:

In recent months, we have become acquainted with the Enforcer, a close support prop-jet aircraft developed entirely with private funds now available from Piper Aircraft.

It seems to us quite possible that it offers us a fine close air support weapon at very low cost. It appears to have a capability to kill tanks, operate from forward fields, and loiter for many hours. It is highly armored with a very low infrared silhouette.

There has been a considerable operational spectrum left between the armed helicopter and pure jets, now that the propeller-driven A-1 Skyraider has been phased out of the inventory of all services. And inasmuch as its cost is likely to be only a fraction of other close support aircraft proposed, we would very much like to see the Marine Corps, as an air-sea-land service, test the Enforcer to see where it will best fit into the defense posture.

Sincerely,

Strom Thurmond John Tower
Strom Thurmond John G. Tower



ARMY REEVALUATES ENFORCER NEED

Washington—Army is reevaluating its roles and missions requirements at the request of the House Armed Services research and development subcommittee to assess the need for a fixed-wing aircraft like the Cavalier Enforcer close-support airplane based on the North American P-51 design.

The Army has been asked to complete the evaluation of its missions and the need for an Enforcer-type aircraft by mid-November, the same date by which the Air Force, Navy and Marine Corps have been asked to reevaluate their needs for an aircraft like the Enforcer.

The services earlier told Congress in Fiscal 1975 budget hearings that no requirement existed for the aircraft. The action to seek a reevaluation and delay a flight test decision came Oct. 10. The subcommittee wanted to avoid preempting an Air Force evaluation by a team from the Aeronautical Systems Div., Wright-Patterson AFB, Ohio (AW&ST Sept. 23, p. 27). The team's report is scheduled for submission to USAF Chief of Staff Gen. David C. Jones by mid-October.

The Army was asked to assess its requirements in light of the understanding it has with the Air Force to operate rotary wing aircraft, and to address the claim that the "Army by not being in the fixed-wing business has the need for an aircraft [fixed wing] to fill the gap between the helicopter and the jet," a House staff member said. The move could give the Army an opening to return to fixed-wing operations if it determines the requirement exists, Defense officials believe.

A decision to press the Pentagon to produce four prototype Enforcers and eventually flight test them will not be made by the subcommittee until the services report their evaluations.

The subcommittee determined in its meeting that the Enforcer is not considered a competitor for the Fairchild Industries A-10.

The House subcommittee members believe that misinformation earlier caused the services to determine they had no Enforcer-type requirement and expect that a reevaluation may yield other results.



NEWS REPORT FROM WASHINGTON

Alabama's Dickinson
Fights For Air Support
The Air Force
The Army

WASHINGTON, D.C. -- A long struggle has been waged by many in Congress (for two years) to get the Pentagon to flight test a cheap close support aircraft, the Enforcer, which has been built and financed without government money or government planning and design.

For a long time the Air Force has been the most formidable bar to a test--by misrepresenting the facts concerning the Enforcer and also by favoring a much more expensive close support aircraft it helped plan and finance with taxpayers' money.

The first strong pressure from Congress came from the House Appropriations Committee's Defense Subcommittee, which saw in the Enforcer the possibility of huge savings--and an aircraft the nation's armed services could buy in numbers, if flight tests show it to be effective.

More members of both houses have become interested. On the Senate side, Senator Strom Thurmond (R-SC) has been a leading advocate of tests and he has been joined by fellow Senators, Republican and Democratic. This past summer the stalling at the Pentagon had continued so long five Senators signed a joint letter to Secretary of Defense Schlesinger requesting flight tests.

Even though Schlesinger regularly talks about cheaper weapons and effective, inexpensive weapons, and warns that the nation could become a second class military power, he has done nothing to see that this promising, inexpensive air weapon gets a test.

In August the House Armed Services Committee got into the act. Its Research and Development Committee, headed by Illinois' Mel Price, held a special meeting to hear about the Enforcer--and how it had been misrepresented by Air Force spokesmen.

Nov. 4

What the subcommittee learned in that session led to another meeting, demanded by Alabama's Bill Dickinson, who wanted House members of the Armed Services Committee to join in the appeal to Schlesinger.

That second session, on October 3rd, produced not the letter many wanted, but a memorandum from the committee staff, which may or may not produce a test. The memorandum, in effect, asked the services about their requirements, and to reevaluate the close air support doctrine accepted generally since 1971.

Meanwhile, the new Air Force Chief of Staff, aware his service was under heavy fire for misrepresentation of the facts and blocking a flight test, recently ordered a new top-level evaluation of the Enforcer's capability. That study group found the aircraft would do what its builders claim--and that it would probably cost about a million dollars a copy. (The Air Force's proposed close support aircraft seems likely to cost at least four or five times that much--built in similar quantities.)

The services are to report back to the House Subcommittee by November 15th on their reevaluations; most observers feel they will stick to their own weapons. But the Army is torn over the issue; it recognizes that the Air Force possesses the close support role. And many Army officers are not happy about that, or the quality of close support the Air Force provides.

The top brass, however, is hesitant to start an all-out roles and missions fight, in view of past Army air projects which proved busts and the superior lobbying power of the Air Force. Meanwhile, a promising, much cheaper close support aircraft, designed at not a penny's cost to the government, waits in the wings only to be tested, and could probably save the nation billions.

House Unit to Urge Enforcer Flight Test

Washington—House Armed Services research and development subcommittee will meet this week to consider pressing the Pentagon to test fly the Cavalier Enforcer based on the North American Mustang fighter. There are growing signs that the issue could prompt reopening of the roles and missions agreements between the Army and USAF.

Members of the subcommittee and a number of other House members are ready to send a letter to the Defense Dept. demanding that the Enforcer aircraft be flight tested either by the Directorate of Defense Research and Engineering (DDR&E) with support of all the services or by the Air Force. David B. Lindsay is the developer of the aircraft, which Lockheed-Georgia would produce (AW&ST Aug. 12, p. 50).

A similar letter by five ranking members of the Senate went to the Pentagon requesting flight tests in July for the close-support Enforcer.

In addition to House interest in testing the aircraft, members of the White House staff and the Office of Management and Budget have been delving into Lindsay's claims for the aircraft. The President's assistant for legislative affairs, William E. Timmons, has been gathering material on the Enforcer.

The Air Force in the past several weeks has reversed an earlier position it had taken on the aircraft and has established a team to reexamine Lindsay's claims for the Enforcer. USAF officials earlier told Congress the Enforcer could not perform as a previous Pentagon study said it could.

The USAF team to investigate the Enforcer was formed at the Aeronautical Systems Div., Wright-Patterson AFB, Ohio, and is headed by Fred T. Rall, technical director for ASD engineering. The team visited Lockheed-Georgia Sept. 9 to study engineering designs.

Some members of the team later traveled to Vero Beach, Fla., where a prototype Enforcer is hangared.

The team is scheduled to report its findings by mid-October to Air Force Chief of Staff, Gen. David C. Jones. Gen. Jones formed the team after an Aug. 17 meeting in the Pentagon with Lindsay.

Defense Dept. officials said that the team, which USAF officials have told House members is taking a fresh approach in looking at the Enforcer, is really seeking to determine facts about the aircraft in relation to testimony earlier to Congress by USAF's Gen. W. J. Evans, who was then head of research and development.

Rep. William L. Dickinson (R-Ala.), a member of the R&D subcommittee, told AVIATION WEEK & SPACE TECHNOLOGY that he has talked to Air Force officials

about the Enforcer and that he believes that the Air Force will flight test the aircraft.

Rep. Dickinson said USAF officials told him the prototype may not be in flightworthy condition. He said that he and other representatives believe that if it is not, additional prototype aircraft should be produced and test flown.

Unless the Air Force is willing to test fly the Enforcer, Rep. Dickinson said, he intends to contact the Army about testing it. He added that he and other members of the House will delve into roles and missions between the Army and Air Force.

It could mean putting the Army back into the fixed wing business again, Congressional staffers said.

Rep. Melvin Price (D-Ill.), chairman of the R&D subcommittee, said members of the subcommittee are urging a letter calling for flight tests. He said he has

been in touch with the services and that no requirement for the aircraft exists. Rep. Price said he believes it is hard to support a letter asking for flight tests when no requirement exists. He is holding back, he said, waiting to hear from the Air Force team on its study.

Rep. Otis G. Pike (D-N.Y.) said he will support a House letter to the Pentagon asking for tests of the Enforcer.

Pentagon officials believe that the Defense Dept. already has decided that if enough House members ask for flight testing the Enforcer in addition to earlier Senate pressure, the tests will be conducted.

"Congress believes that there is a mission for the aircraft and that it is not viewed as a competitor for the A-10 [Fairchild Industries close-support aircraft]," a Defense Dept. official said, "and it looks like we will test it, dragging our feet all the way."

Ferranti, Caught in Cash Bind, Asks British Government Aid

London—Ferranti, Ltd., one of Britain's largest high-technology defense contractors, last week was forced to ask for British government aid when its main banker, National Westminster, warned that it was exceeding a loan limit of \$38 million.

Financial sources here believe Ferranti, largely a family-owned concern, was forced into the liquidity crisis through National Westminster's reaction to its large potential loss in the Court Line bankruptcy and subsequent hard look at all of its industrial loans (AW&ST Sept. 2, p. 30).

Faced with a lack of cash to meet its 16,000-employee payroll, the Ferranti brothers, Sebastian, company chairman and managing director, and Basil, a director, conferred with Dept. of Industry and Treasury officials on a rescue plan, at least on a temporary basis.

Industry Minister Anthony Benn, himself heavily involved in the Court Line collapse and subsequent government intervention, last week was taking a cautious line on Ferranti, while assuring worried union leaders that the firm would not be allowed to go under.

First course will be to approve a \$12-million loan from the government, using the 1972 Industry Act, which provides for such immediate intervention while holding options open for eventual government shareholding.

There also is a possibility that Ferranti, through government motivation, may be forced into a merger with either the Ples-

sey Co. or the giant GEC, Ltd., which owns Marconi-Elliott, among others. Unions at Ferranti are strongly opposed to this action.

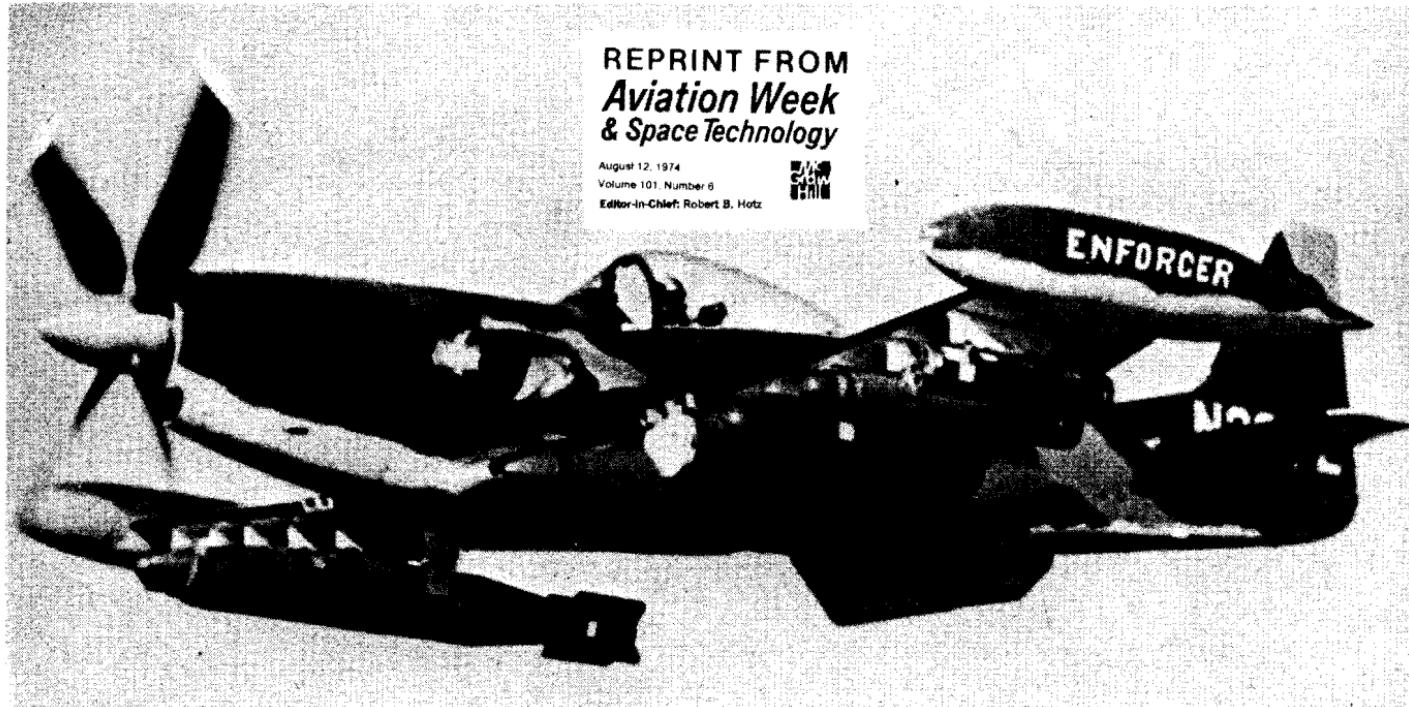
Ferranti is one of the largest privately controlled companies in Britain, with 56% of the stock held by the Ferranti brothers and family trusts.

In 1973-74, Ferranti had revenues of \$165 million, but reported a loss of \$80,000. Sebastian Ferranti blamed the loss on two fires, rising costs of stock replacement and research and development, and industrial disputes. He also said that in common with other companies, Ferranti has been faced with the effects of inflation.

The company is a major force in the European avionics industry, and about 15% of its business is on contracts for the Anglo-French Jaguar, the Hawker Siddeley Harrier and the multi-role combat aircraft (MRCA). For years, the transformer side of Ferranti's business had shored up profits, but this has fallen off in recent years.

Ferranti's moves into high-technology research and development, at a time when the British government was cutting back its own participation in industrial R&D for military purposes, is partly the cause of Ferranti's current cash problem. In 1972-73, the R&D budget was \$36 million and this has tied up men and materials without contributing to revenues.

Most of this has been spent on advanced computer systems, radars and navigation equipment for aircraft.



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Cavalier/Piper Enforcer close-support aircraft, which would be produced by Lockheed-Georgia under an option, carries a mix of weapons on its 10 ordnance stations. Note the large over-the-wing exhaust port for the Avco Lycoming T55-L-9 gas turbine engine. The small residual thrust exhausted provides a low infrared signature for heat-seeking missiles. Muzzles of six .50-cal. guns are barely visible in the wings.

Flight Test Program Sought for Enforcer

By Clarence A. Robinson, Jr.

BRIEFING ON THE MILITARY AIRLIFT
CAPABILITY DURING THE MIDDLE
EAST CONFLICT

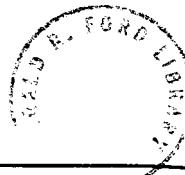
AND
THE ENFORCER AIRCRAFT

BEFORE
SUBCOMMITTEE NO. 1
OF THE
COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES
NINETY-THIRD CONGRESS
SECOND SESSION

THURSDAY, AUGUST 8, 1974



U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1974



[H.A.S.C. No. 93-66]

SUBCOMMITTEE NO. 1 BRIEFINGS ON THE MILITARY AIRLIFT
CAPABILITY DURING THE MIDDLE EAST CONFLICT AND THE
ENFORCER AIRCRAFT

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE No. 1,
Washington, D.C., Thursday, August 8, 1974.

The subcommittee met, pursuant to notice, at 2 p.m. in room 2212, Rayburn House Office Building, the Honorable Melvin Price (chairman of the subcommittee) presiding.

Mr. MELVIN PRICE. The committee will be in order.

The purpose of today's meeting of the subcommittee is twofold. We will receive a briefing from Mr. Jack Reiter, vice president, World Airways, Inc., concerning some aspects of our military airlift capability during the Mideast conflict.

Following Mr. Reiter's presentation, we will receive testimony on the Enforcer aircraft from Mr. David B. Lindsay, its designer and developer.

At that point, the subcommittee will go into executive session since some performance characteristics of our close air support aircraft may be discussed.

Mr. Reiter, will you please begin your presentation.

STATEMENT OF JACK REITER, VICE PRESIDENT OF GOVERNMENT AFFAIRS, WORLD AIRWAYS, INC., ACCCOMPANIED BY HERB GREUTER, VICE PRESIDENT AND ASSISTANT TO THE PRESIDENT, WORLD AIRWAYS, INC.

Mr. REITER. Thank you. We have a short film here, and I would like to introduce Herb Greuter, the vice president of government affairs, World Airways, Inc., who is a former MAC airlift officer himself, to narrate it.

Mr. PRICE. Welcome to the committee.

Mr. GREUTER. Thank you very much, sir.

The film is a 17-minute film. It depicts one of the operations during the 12 series of flights operated for the Military Airlift Command from October 20 to about November 20.

This film was taken by Boeing people on the 10th flight outward and on the 11th flight returning from Clark.

The film pretty much speaks for itself, Mr. Chairman.

I might add that I was fortunate to have been on the first flight going out when we started the program not more than 9 days after the program had been awarded by MAC to us.

Therefore, if there are some questions, I would be happy to answer them and do my best to do so.

Mr. PRICE. Fine.

Mr. REITER. I might add here before it starts, to put this into perspective, the Arab-Israeli war was on, and as you know, the MAC was using C-5's and 141's. They were short of airlift. This is airlift we provided for MAC, cargo airlift, with the Boeing 747-C's in the Pacific.

[Film was shown.]

Mr. PRICE. Does anyone have any questions?

Mr. HICKS. It certainly is a pretty airplane, Mr. Chairman.

Mr. PIKE. Really beautiful airplanes and a really beautiful job, and I'm only curious over what the cost was per ton-mile.

Mr. GREUTER. The cost of the CAB established rate which we received from MAC as I recall was 8.04 cents a ton-mile.

Mr. PRICE. Mr. Runnels.

Mr. RUNNELS. Mr. Chairman, what was so important that had to be flown over there and then, some had to be flown back?

You know he took 154,000 pounds over and brought 100,000 pounds back. I wonder if you know what the inventory was?

Mr. GREUTER. I'm afraid I can't answer that, sir, as to what the contents of the military cargo was.

Mr. RUNNELS. Did we fly it over so we would make a test run of what we could do?

Mr. GREUTER. Not at all, sir.

Mr. REITER. All this cargo was to be flown to the different air bases and scheduled to be flown before the Israeli-Arab conflict.

Mr. RUNNELS. What was in the boxes?

Mr. REITER. It was the usual military equipment.

Mr. PRICE. The committee will recess for 5 minutes to answer a roll-call on an amendment.

The committee will recess for 5 minutes.

[The committee recessed at 2:18 p.m. and reconvened at 2:30 p.m.]

Mr. PRICE. The committee will be in order. The committee will resume its sitting.

The next witness will be Mr. David B. Lindsay, Jr., to testify on the Enforcer aircraft.

Mr. Lindsay, would you come around, please?

Mr. LINDSAY. Yes, sir.

Mr. PRICE. At the outset of these hearings we will put in the record a letter received from Mr. Lindsay and directed to the chairman in connection with the request for these hearings.

[The following information was received for the record:]

EDITOR'S COPY SYNDICATE,
Orangeburg, S.C., July 5, 1974.

Congressman F. EDWARD HÉBERT,
House Office Building,
The Capitol, Washington, D.C.

DEAR CONGRESSMAN HÉBERT: As a member of a committee responsible to the taxpayers for defense spending, I know you'll be interested in the enclosed exposure of an effort to mislead Congress and the American people.

Congressman Les Aspin shows quite clearly that some in the Air Force are grossly misleading members of congressional committees about the performance of the A-10 and ENFORCER close support aircraft—to justify lavish spending in behalf of a premature, even reckless, decision to buy the A-10.

The designer/builder of the ENFORCER, publisher David Lindsay of Sarasota, Florida, has asked to appear before a House Armed Services Subcommittee to correct untrue statements about the ENFORCER made recently by Air Force representatives; this testimony will interest you—as did Lindsay's remarks before the House Appropriations Defense Subcommittee on May 30th.

Since the misleading information about the ENFORCER was presented to the House Armed Services Committee, by the way, Mr. Lindsay's patented concept of firing a 106 mm. recoilless rifle from a wingtip installation he designed especially for the ENFORCER has been carried out, highly successfully, at China Lake, California (May 30th). This is an aviation first and means the ENFORCER now offers the nation a sure method for the mass destruction of tanks at minimal cost. (The 106 round will destroy any tank, costs but \$70 per round, is proven, tested and carried in the field. The A-10's experimental 30 mm. gun is still a question mark to many.)

The developing scandal about the ENFORCER, and efforts by some in the Air Force to mislead Congress about it, is one you are necessarily involved in; as one who writes for newspapers in your state, I strongly urge you to add your demand to that of others now insisting that the Department of Defense order a tri-service flight test of the ENFORCER (built completely with private funds) in the taxpayers' and the national interest. The ENFORCER can be built for somewhere between one-third and one-sixth the cost of the A-10—in comparable numbers.

Yours sincerely,

EDWARD H. SIMS.

[Note: The following were attached to the letter to Mr. Hébert.]

[Reprinted from Congressional Record, July 1, 1974, p. E4415]

HON. LES ASPIN OF WISCONSIN, IN THE HOUSE OF REPRESENTATIVES

Mr. Aspin. Mr. Speaker, the Pentagon has given Congress contradictory and misleading information on the capabilities of a new, highly effective jet fighter—the Enforcer—which is an attractive alternative to A-10 close air-support aircraft.

Recently released House Armed Services Committee testimony about the Enforcer presented by Air Force Gen. W. J. Evans (USAF DCS/R and D) is so misleading and in part, un-true, that I have no choice but to conclude that his actions were deliberate.

Each Enforcer costs slightly more than \$1 million while the cost of the A-10 is \$3.4 million per aircraft. Current Air Force plans include a buy of 729 A-10's to support ground combat troops at a total cost of approximately \$2.4 billion.

Mr. Speaker, General Evans told the House Armed Services Committee on April 5 that "the range of the aircraft—the Enforcer—is limited." But, Mr. Speaker, I am publicly releasing an Air Force factsheet on the Enforcer which shows that its aircraft's range is 3,075 miles—475 miles greater than the range of the A-10.

General Evans also complained that the Enforcer could not take off from short runways. The same Air Force factsheet shows that the Enforcer needs only 1,100 feet to take off compared to the A-10's 3,020 feet.

I am publicly releasing a detailed summary of all the major contradictions in the various Air Force presentations on Enforcer, including the aircraft's speed, landing distance, and number of bomb stations. With so much contradictory evidence produced by the Air Force, it seems clear that the case of the Enforcer and its rival, the A-10, should be reviewed. One possibility would be for the Air Force to conduct a flyoff between the two planes to determine which one, given its cost would be the most effective. Since each A-10 is three times more expensive than the Enforcer, the Enforcer seems to be an attractive alternative to the A-10. In fact, I think it may be difficult for the Air Force to prove that the A-10 is three times better than the Enforcer.

The Enforcer which is a single-engine jet prop, was developed by Florida publisher David Lindsay. Deputy Defense Secretary William Clements recently said that the Enforcer had "met the general performance claims made by the offeror." Mr. Clements' statement further confuses the issue because Lindsay has claimed that the Enforcer has a maximum speed of 403 knots per hour—faster than the A-10—while the Air Force says the Enforcer flies 330 knots per hour—slower than the A-10.

The only way for the Congress to determine the facts is to order a complete series of flight tests for the Enforcer and compare it to the A-10.

As many of my colleagues know, Defense Secretary James R. Schlesinger has suggested that the Pentagon should buy cheaper, more simple weapons. The Enforcer may just fit the bill for a highly effective and relatively cheap aircraft. The Air Force's contradictions follow:

AIR FORCE CONTRADICTIONS

Range

Air Force Statement: "The range of the aircraft is limited." (Gen. Evans, House Armed Services Subcommittee, April 5, 1974.)

Contradiction: Enforcer range is greater (3075 miles) compared to A-10's (2600 miles). (Air Force Fact Sheet, June, 1974.)

Survivability

Air Force Statement: Q. Does it (Enforcer) have less survivability than the A-7? A: I would say yes. (Gen. Evans, House Armed Services Subcommittee, April 5, 1974.)

Contradiction: Detailed study by Joint Technical Co-Ordinate Group of the Naval Air Systems Command reveals that the Enforcer is less vulnerable to 23 mm, 57 mm and SA7 missiles than A-7. (DDR & E Fact Sheet, June 1974).

Take-off

Air Force Statement: "The ability to take off from unimproved short strips with heavy bomb load is extremely limited." (Gen. Evans, House Armed Services Subcommittee, April 5, 1974).

Contradiction: Enforcer take-off distance (at full weight) is 1100 ft. compared to 3020 ft. for A-10. (Air Force Fact Sheet, June, 1974).

Maximum speed

Air Force Statement: Enforcer's maximum speed is 330 knots—slower than the A-10. (Air Force Fact Sheet, June, 1974).

Contradiction: Enforcer's maximum speed is 403 knots—faster than the A-10 maximum speed of 390 knots. (David Lindsay, Enforcer Developer).

Landing distance

Air Force Statement: Landing distance is 3000 ft. for the Enforcer at maximum weight—longer than the A-10's of 2140 ft. (Air Force Fact Sheet, June 1974).

Contradiction: At normal landing weight Enforcer needs a shorter runway (880 ft.) compared to 1050 ft. for A-10. (Data provided by Air Force Office of Legislative Affairs, June 1974).

Engine

Air Force Statement: Enforcer will be powered by a 2445 horsepower engine. (Air Force Fact Sheet, June 1974).

Contradiction: Enforcer will be powered with 2950 horsepower engine. (David Lindsay, Enforcer Developer).

Bomb stations

Air Force Statement: Enforcer has 6 bomb stations. (Air Force Fact Sheet, June 1974).

Contradiction: Enforcer has 10 bomb stations (From Air Force Office of Legislative Affairs, June 1974).

Mr. PRICE. Mr. Lindsay, would you proceed?

Mr. LINDSAY. All right, sir.

I have a prepared statement and I will skip, of course, the personal comments and background.

STATEMENT OF DAVID B. LINDSAY, DESIGNER AND DEVELOPER OF THE ENFORCER AIRCRAFT

Mr. Chairman, members of the committee, I appreciate this opportunity today to correct misstatements which have recently been made before this committee about a privately designed and produced weapons system, and its advantages and potential for close air support, which I feel relates critically to the Nation's defense.

This story is unique; the Enforcer represents—for the first time in the history of the Defense Department—a complete aircraft weapons system designed, built, and tested without any Government funding whatsoever.

The Enforcer is a one-man high, one-man wide, single engine, conventional gear, low-wing aircraft, made entirely of standard aircraft aluminum and the world's most effective composite armor.

I have some profile drawings of this aircraft that might be helpful to you. Mr. Sims will pass them out to you.

It has 10 underwing weapons stations and 6 internal 50-caliber machineguns and is essentially a platform to deliver ordnance. Senator Thomas McIntyre has called it a flying arsenal. Its unrefueled range or loiter is greater than that of any comparable aircraft. Its speed range is 80 to more than 400 knots—which makes it, incidentally, capable of both faster and slower speeds than the Air Force's proposed close support aircraft, the A-10.

I mention that to prove, gentlemen, I think we are in the right speed regime. Some people suggested more speed.

You may wonder why an artillery officer of World War II, a newspaper publisher for the past quarter century, is here discussing a close-support aircraft weapons system.

To explain as briefly as possible, I have been a pilot since 1941. In 1957, I purchased the first of a number of F-51D Mustangs which had remained in service from World War II until that year. The Mustang has impressed all who flew it with its remarkable range and overall performance, and how forgiving it is to pilots with limited experience.

My company, Cavalier Aircraft, began rebuilding and improving Mustangs for the civilian market.

LIMITATIONS OF JET AIRCRAFT

The Air Force, and we at Cavalier, soon learned that many countries were unable to achieve effective military operations using only jet aircraft.

Pure jets had, and still have, certain disadvantages which make them inherently less than ideally suited for close air support work. Not the least of these is a high rate of fuel consumption at low altitude and at reduced speeds necessary for precise delivery of ordnance very close to our own troops.

Another is an excessively large turn radius. Another is slow acceleration. Also, with their characteristically small nosewheel, or wheels, they are unable to operate from unpaved, rocky, or muddy fields.

In passing I might mention I developed one Enforcer with a nosewheel but found when operating on a muddy or soft field as might be encountered, say, in the central plains of Europe, the nosewheel would dig in and we are out of business.

They have difficulty conducting sustained maneuvers or searches at low altitude in difficult, mountainous terrain, or under low ceilings.

Many friendly foreign countries, particularly in South America and Asia, have a very limited number of paved, jet-capable fields, and vast areas to be kept under surveillance; their only feasible operational technique is for their aircraft to land, refuel, and re-arm on a pasture, road, or clearing.

Recognizing this, the U.S. Air Force requested Cavalier to build a number of advanced F-51's, known as Cavalier Mustangs, for the military assistance program. A classic example is Indonesia, a nation of some 3,000 islands, spanning 3,000 miles of the Pacific, which today is still operating Cavalier Mustangs—despite the discovery of oil, I'm respecting that—recently supplied by the U.S. Air Force—although it possesses Russian, American, and Australian pure jets, which are unable to perform many of the Mustangs' missions.

GENESIS OF ENFORCER

Cavalier never achieved profitability under these military contracts but the experience proved invaluable. United States and foreign pilots sent to Cavalier were recently experienced in combat. Their advice and realistic concept of an ideal close air support machine convinced me I could build a superior state-of-the-art weapons system for close air support, utilizing a number of my own original patents for simplified aircraft construction and weapons systems and weapons systems control.

In the early seventies Deputy Secretary of Defense David Packard, in a widely applauded move, challenged private companies to initiate prototype efforts at their own expense and this encouraged me in my efforts.

In speaking of close air support I am not discussing interdiction, deep strike, or long-range bombing missions. I am speaking of close air support as defined by the Joint Chiefs of Staff dictionary as follows: "Air attacks against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces."

It might be put in more "lay" language by saying you have to slow up and get close enough and see what the fellow's suit is and what his face looks like before releasing your ordnance. You may have to jettison ordnance to keep from tearing up your aircraft.

FIRST PROTOTYPE

Most combat officers whose ideas I sought agreed the jetprop, or turboprop as it's also called, is the ideal propulsion system for close air support.

I built my first prototype around a Rolls-Royce Dart commercial turboprop engine, and though we were able to prove the soundness of the concept, the engine was too large and too lightly stressed for combat.

I finally decided on the Lycoming T-55-L-9, a variant of the basic engine used today in all Army and Marine CH-47 Chinook helicopters. (The difference between the helicopter engine and ours is merely that the helicopter engine drives a gear train for the rotor-propeller above while ours turns a gearbox for a forward propeller.)

After a nationwide search, I located a T-55-L-9 lying unused at Wright-Patterson Air Force Base, unairworthy and stored in an abandoned wind tunnel. After 8 months of legal effort, I finally negotiated a lease with the U.S. Air Force on this engine, prorated on its full new acquisition cost to the Government. Lycoming, the engine's manufacturer, demonstrated faith in the Enforcer program by overhauling it to airworthy condition at its own expense.

Around this engine I designed a new aircraft and built a flying prototype, retaining, of course, proven features of the F-51, utilizing components from other aircraft, which, by the way, include the Cessna Citation, the A-1-Skyraider, and others, new avionics systems, and newly manufactured parts based on my own patents. The first prototype, for reasons of economy, was therefore a composite. Production aircraft would, of course, be of completely new manufacture. And I should stress there, I think, that not one single F-51 Mustang tool would be used in building the Enforcer. It would be a new aircraft.

PIPER AND PAVE COIN

In 1970 I sold the new Enforcer project to Piper Aircraft Co. for a modest down payment, and additional funds to come from aircraft produced and sold in the future.

While still in the process of moving parts from Cavalier to Piper, we received a request from the Air Force to participate in a completely unfunded project open to all the aircraft industry called Pave Coin. The purpose was to select a close air support for the Vietnamization program and to replace the A-1 Skyraider.

In reliance on the clearly stated intent of the Air Force to select and procure aircraft in at least the minimum quantities set forth in the request for proposal, we immediately accelerated to a 7-day overtime schedule. Piper spent well over \$1 million to prepare hundreds of pages of specifications and to flight-qualify the Enforcer for Pave Coin. This included flight tests for weapons separations and weapons suitability.

In August 1971, the Enforcer was flown at Piper's expense to Eglin Air Force Base. For all the time it was in Air Force custody, it performed all flight and weapons tests, by day and at night, with outstanding operational results and a remarkable record of zero maintenance.

As no other competing aircraft actually flew the test missions, successfully, we fully expected an order for the minimum requested quote of 400 aircraft, at Piper's offered flyaway price of \$0.61 million each. But no selection or purchase of anyone's aircraft ever resulted from this operation. All of the companies participating lost their investment.

FURTHER IMPROVEMENTS

Despite this disappointment, we remained convinced of the critical need for a specialized close support, forward deployable aircraft. And we continued to improve the Enforcer's performance, weapons capability, armor, and survivability to cope with the increasing lethality of the close air support environment, brought about by striking advances in Russian radar-directed automatic weapons and heat-seeking missiles, more specifically the SA-7, and others which I'm sure we don't know about yet.

The most recently added innovation is now being tested by the Marine Corps at China Lake. It utilizes my concept and patents for mounting the 106 millimeter recoilless cannon, standard weapon of the Army and Marine Corps infantry against tanks, on the Enforcer's wing tips. I think this is a promising approach but only flight and firing tests with actual Enforcers will provide us the facts.

Incidentally, gentlemen, in your blue folders there is a reproduction of a page from current Aviation Week showing that weapon being fired in flight from a Cavalier Mustang. It is not an Enforcer, but its geometry is similar enough we decided that was the best way to go in doing what might have been considered a high-risk test.

It was totally successful.

The first firing of the 106 millimeter was completed earlier this year—history's first from an aircraft. The cost of a 106 round, incidentally, is only about \$70—and there's no question about its ability to kill any tank. I am sorry I don't have an example of the round here, but it is approximately 4½ inches in diameter. It is a cannon round not a rifle or machinegun round.

LOCKHEED AND TECHNICAL EVALUATION

In August of last year Lockheed Aircraft purchased manufacturing rights to the Enforcer, lending its considerable high-technology engineering expertise to the evaluation program then under way by the Marine Corps, the Naval Air Systems Command and the Joint Technical Coordinating Group for Air Survivability, which is made up of representatives of all the services and analyzes the ability to withstand hits and survive for 5 minutes. This study had been initiated by Deputy Secretary of Defense William Clements at the suggestion of a number of concerned members of the Appropriations and Armed Services Committees of both Houses.

I had undertaken an effort to acquaint members of both of these committees of the availability of the Enforcer, and of a disturbing gap in the air operations spectrum between jet fighters and armed helicopters. This gap is not officially recognized by the Air Force.

The Air Force remains adamantly dedicated to pure jets for attack aircraft—ruling out utilization of the Enforcer or any other prop-jet—whatever its merits and advantages.

SERVICE RIVALRY

And since, under an obsolete agreement between the then Army and Air Force Chiefs of Staff, the Air Force continues to retain responsibility for providing close air support for the Army, this inflexible policy also bars the Army from utilizing fixed-wing, attack prop-jets. In my considered opinion, based on years of work in this specialized field, this insistence on jets means the Nation is taking unacceptable security risks in the field of close air support. I might add that a number of Navy officers with whom we have talked feel it is unjustified for the Air Force to object to Army utilization of a forward-deployable aircraft peculiarly adapted to commingling with Army units simply because it is fixed-wing.

It would seem reasonable to consider the inexpensive Enforcer in a Hi-Lo concept in relation to the A-10 for close air support much as the economical light weight fighter is being considered as a supplement to the F-15.

I might interject here I discussed this with some D.D.R. & E. people in the last few days and they seem to be interested in this concept. I hope they will explore it further. The idea being to buy a number of the less-expensive aircraft to supplement the large bomber-size aircraft now being contemplated.

INSURANCE THROUGH NUMBERS

Even if viewed only as a standby option should present hopes and performance estimates in the close air support weapons field prove overly optimistic, the Enforcer offers prudent and economical insurance for the Nation.

General George S. Brown points out in a recent, May, issue of Air Force magazine that aircraft of "long endurance, high survivability, and great firepower" will be needed to "offset the massive numerical armor advantages of the Warsaw Pact compared to NATO". I believe the Brookings Institute study released last week indicates a 3 to 1 tank superiority and 2 to 1 aircraft superiority on the part of the Warsaw Pact. I have today provided the subcommittee a copy of a recent letter I addressed to Chairman Price, correcting incorrect Air Force statements about the Enforcer, drafted after a lengthy meeting with General Brown's staff.

I want to express my deep appreciation to General Brown, Chairman of the Joint Chiefs, for receiving me on Friday the 19th and allowing me to dictate to his own staff the suggested comments and corrections and for his having distributed the cover letter to the Air Force. I'm here because no corrective action to my knowledge has been taken.

Last year in Germany I had the opportunity to discuss this NATO defense problem with Gen. Guenther Rall and others. They pointed out that it must be assumed all jet-capable airfields are pretargeted and that within an hour of a major attack, all airbases in the forward combat zone will be rendered inoperable. It has been suggested to me the autobahns could be used. I would like to point out historically when the Russians make a move the refugees are there in great quantities on autobahns and that the autobahns in comparison to some of our interstates are not as big and useful as we once thought them, although they are excellent roads.

A relatively large number of prop-jets, capable of operating from short and unimproved fields, requiring no external starters or other support equipment and minimum maintenance, equipped with stand-off missiles such as Mavericks, 30 mm. gun pods, and 106 mm. recoilless cannons, may offer our only aerial weapon capable, under these conditions, of effectively assisting NATO ground forces in checking the tens of thousands of tanks now deployed against them. No matter how capable, a relatively few multi-million dollar aircraft cannot cope with numbers and distances involved. As Senator Barry Goldwater said in U.S. News recently:

One expensive aircraft may be better than one inexpensive plane, but it is not better than five.

You gentlemen already know that the Enforcer will fit inside NATO's new protective revetments which are 48 feet wide.

It is my understanding approximately almost half a billion dollars has been spent building these 48- by 100-foot revetments.

The wingspan of the A-10, for example, is 54 feet.

The question of numbers and costs is crucial. Lockheed proposed to build 250 Enforcers at \$0.76 million per copy. As we understand it, the cost of the A-10, for example, is something like \$3.4 million, but this is based on a buy of 729. And, we are told it is now unrealistic to think the Air Force will have the funds to buy such a quantity. There-

fore the cost per copy of the A-10 may well be much, much higher than envisioned. On the other hand the Enforcer price is based on a buy of 250 copies only, and this could be considerably reduced if a greater quantity were built—which is highly likely if the aircraft is ever fairly tested.

FLIGHT TESTS NEEDED

Because of the Enforcer's capability and low price, a number of Members of the Senate and House have persisted in urging the Department of Defense to conduct operational flight tests with two to four prototypes. A July letter from five influential Senators requesting that is provided to you today. These gentlemen represent quite a spectrum of political and military opinion. I don't imagine their signatures have appeared on very many joint letters. They have not, and we have not, asked that the Enforcer be put into production or into any service's inventory. They are seeking meaningful flight tests, the only way to demonstrate the Enforcer concept and capability to the Congress and the Nation. To quote Senator Goldwater again:

There is no way a computer can fly an airplane. Someone with eyes and a brain has to do that.

That is in a letter specifically about the Enforcer to us.

General George Brown agreed when he said that, after all paper evaluations, "all we've got is the point at which an experimental test pilot has to strap on a piece of hardware, take it into the real world, apply all his hard-earned knowledge and skill—and tell us what we really have."

Last year we seemed very near our flight test goal. Deputy Secretary of Defense Clements had ordered a full engineering and survivability evaluation, as distinct from flight testing. To avoid disagreement over roles and missions, he asked the Marines to conduct the evaluation. Mr. Clements told me and others in our meeting that if a full "paper" evaluation proved promising, we would then move on to flight tests. Before the House Appropriations Defense Subcommittee last May, Marine Commandant Robert Cushman, in answer to Congressman Robert Sikes' question: "Is this another paper study?" replied "No, sir; I think we will have to fly it to get all the determinations."

The evaluation conducted by the Marines, the Naval Air Systems Command, and Joint Test Coordinating Group for Air Survivability with Air Force participation and Air Force computer usage was certainly a thorough one, consuming more than a year. Opponents claimed to have discovered one deficiency after another. But the studies disproved all these objections. It's now officially admitted that the Enforcer will do everything we have claimed.

Lockheed has quoted a flight test package price of \$6.1 million for a full Milspec engineering program, the existing prototype plus three more prototypes, company flight tests, and engineering support of military flight tests. Somehow, however, opponents have intervened to block a favorable decision.

THE NO REQUIREMENT BARRIER

We are at the point today where the Pentagon has been forced to admit that the Enforcer will do all we have claimed, and at a very low acquisition cost. The bar now to operational flights tests is a remarkable

conclusion—that because there is no sponsoring service, there is therefore no "requirement" for the aircraft. We are thus back to square one—there was no official requirement when our efforts began, but a very obvious need. That need becomes more obvious daily as studies indicate the necessity of supplementing sophisticated and expensive close support systems. We are all acutely conscious of what inflation is doing to everyone's budget.

I believe it's going to require from the Congress something more than routine inquiries to the Pentagon to end this calculated pattern of delay in which the services have been protecting one another's pet projects. In fact, we have reluctantly come to the conclusion that only strong congressional direction, admittedly an approach Congress prefers to avoid, will end this exercise in semantics and produce the factual data and meaningful close support comparisons Congress and the American people are entitled to have.

Recently the Congress has approved \$200 million to keep F-111 production lines open as "insurance" in case the B-1 bomber program is canceled.

Surely \$6 million to build, test-fly, and demonstrate the new, economical close-support concept represented by the Enforcer is a reasonable price for insurance that our ground soldiers will have effective and sufficient close air support, especially now that the Harrier program just in the last few days has been curtailed, and many continue to express doubts about the Air Force's ability to solve all of the A-10's problems and to afford sufficient quantities of them.

I would like to turn now to more specific corrections of this committee's records in the form of incorrect information about the Enforcer provided the committee by the Air Force.

I now submit for the record a letter to Chairman Price with analytical attachments detailing those errors. If I may, I will read that letter, dated Tuesday, August 6.

Mr. PRICE. The letter will be included in the record as will any other data you may care to submit.

[The following information was received for the record:]

AUGUST 6, 1974.

Hon. MELVIN PRICE,
Chairman, House Armed Services Committee No. 1,
The Capitol, Washington, D.C.

DEAR MR. CHAIRMAN: I deeply appreciate the opportunity of appearing before your Committee to point out certain misunderstandings and misinformation which have developed concerning my ENFORCER CAS aircraft.

To the best of my knowledge, this is the first aircraft weapons system ever designed, built, and privately tested without any government funds. As it represents over six years of work on my part, and substantial expenditures, some from borrowings, I have no choice but to try to correct misinformation which could gravely damage its chances for acceptance in the U.S. or foreign countries.

I regret that some have viewed it as a threat and competitor for the A-10. I designed it specifically as an A-1 Skyraider replacement, with Vietnamization and Foreign Sales or MAP aid in mind.

After it was not purchased following the abortive PAVE COIN exercise, I continued to improve its weapons capability, and to harden it with additional armor. I also designed corrections for the few adverse comments arising from PAVE COIN.

In the spring of 1973, Deputy Secretary Clements and Dr. Foster ordered a full analysis and evaluation, after which I expected operational flight testing if the paper evaluation were favorable.

The thorough analysis results confirmed my best hopes and claims, but so far no flight tests have been requested by any Service. Without such tests, our ability to interest the foreign market is thwarted.

I sincerely feel that the ENFORCER might well be looked at in the HI-LO concept in relations to the A-10 or Harrier, much as the Air Combat Fighter (Light Weight Fighter) is being considered as a supplement to the F-15. However, I am really only seeking to have the aircraft operationally flight tested, once and for all, to determine its potential.

A number of Senators and Congressmen of all persuasions feel that the six million dollar package offered by the presently proposed builder—Lockheed-Georgia—is inexpensive insurance for the American public if some projects do not meet full expectations, or if there is, as I believe, a need to fill the spectrum between the armed helicopter and large jets.

The Lockheed package proposed to NASC includes four fly-away prototypes, full engineering review and company MIL-SPEC flight tests, and support of Tri-Service flight tests.

Thank you for allowing me the opportunity of bringing this situation to the Committee's attention.

With highest regards,
Respectfully yours,

DAVID B. LINDSAY, Jr.,
Enforcer Designer/Test Pilot.

ATTACHMENT I

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE NO. 1,
(RESEARCH AND DEVELOPMENT),
Washington, D.C., Friday, April 5, 1974.

The subcommittee met, pursuant to recess, at 10 a.m., in room 2212, Rayburn House Office Building, the Honorable Melvin Price (chairman of the subcommittee) presiding.

Mr. MELVIN PRICE. The committee will be in order.

Mr. Secretary, we had reached page 172, or page 171, the flight simulator development. I think we can skip over that.

The next is air combat fighter, page 173.

General EVANS. Yes, sir.

Mr. MELVIN PRICE. Mr. Secretary, people have been in contact with the committee in reference to an aircraft known as the *Enforcer*. Could you discuss the possibility of the use of the *Enforcer* versus the A-10 in close air support?

STATEMENT OF DR. WALTER B. LABERGE, ASSISTANT SECRETARY OF THE AIR FORCE (RESEARCH AND DEVELOPMENT)—Continued

Dr. LABERGE. I would like General Evans to speak on that.

General EVANS. I am generally familiar with the *Enforcer*. It is basically an F or P-51 design, updated. The Air Force as well as other services have looked at that aircraft as a possible export aircraft for small countries, to provide them with close air support capability.

Recently we updated our previous evaluation of the aircraft, as it had been mentioned to us that it might be a competitor to the A-10 for the close air support mission. *The airplane does not have the survivability, first of all, sir, that we feel is necessary in a close air support airplane, where it will be exposed to air-to-air as well as surface-to-air missiles.*¹

Mr. ICHORD. Does it have less survivability than the A-7?

General EVANS. I would say yes, and definitely less than the A-10. *The range of the aircraft is limited, the ability to take off from unimproved short strips with heavy bomb loads is extremely limited. Its comparison with the A-10 in a loiter capability indicates that it is way behind*^{2 3 4} *that aircraft.*

In other words, in every area where we are interested in optimizing the A-10 for close air support—maneuverability, loiter capability, maintainability, survivability, ability to operate off unimproved strips—it just does not measure up to our standards, sir.⁵

Mr. MELVIN PRICE. Did the Air Force ever consider testing one of them or looking at it firsthand in operation?

General EVANS. We actually flew the aircraft 2 or 3 years ago when we were looking at it for possibly giving it to small countries like Vietnam, Taiwan, Cambodia, for close support work. *In evaluating it, we determined it was not suitable.*⁶

I can expand on that for the record.

Mr. MELVIN PRICE. Will you check as thoroughly as you can, and see how thoroughly the Air Force has looked at it in the close-support role?

General EVANS. Yes, sir.

[The following information was received for the record:]

"The Piper-Enforcer aircraft was one of five candidate aircraft evaluated by the Air Force during the summer of 1971 under Project PAVE COIN. Two of these aircraft, the Piper-Enforcer and the American Jet Industries/Aeronca-Super Pinto, were the subject of flight evaluations at Eglin Air Force Base during August 1971, in addition to paper evaluations. The Cessna A-37B and two versions of the North American Rockwell OV-10 were evaluated on paper only, as these aircraft are in the inventory and have been extensively tested in combat. The purpose of the evaluations was to determine each aircraft's suitability to perform MAP country Light Strike Aircraft (LSA) missions.

"From an operational standpoint the *Enforcer* was judged to be marginally suitable; however, if roll response and dive speed control deficiencies were corrected, it promised to be a suitable airplane for the LSA role. But, so were the other candidates, after their operational deficiencies were corrected.⁷

"From a technical standpoint the *Enforcer* required considerable engineering effort to remedy roll performance deficiencies, incorporate an effective speed brake, incorporate redundant features in the flight control system, redesign the cockpit and validate the structure.⁸

"Before the Air Force could make an assessment of the *Enforcer* for a close air support application using current CAS simulation models, many assumptions would have to be made on the projected capabilities of this aircraft. *The Enforcer lacks the sophisticated armor and fuel protection necessary to operate in the European threat environment. It also lacks range loiter payload capabilities of the other candidate aircraft. Finally, an electro-optical display and carriage capability compatible for use of the Maverick missile would be required. Installing these features on such an aircraft for the CAS mission was found to be imprudent.*⁹ Hence, the Air Force has opted not to evaluate this aircraft further."

Mr. PRICE. Mr. Ichord.

Mr. ICHORD. Is it not unusual when we are going to have a competition between the A-10 and the A-7, an airplane that is already in inventory? Have we ever done that before?

General EVANS. Not that I recall, sir. And I think that is a misnomer, because it indicates there will be a winner and a loser.

Mr. ICHORD. You say in the backup book that you will have a competition.

General EVANS. Yes, sir. That indicates a winner and a loser. I don't think that applies to the A-10 and A-7 evaluation.

We like the A-7. It is one of our best interdiction aircraft. So even if the A-10 should show up better than the A-7 that does not mean the A-7 is a loser and that we don't want it. We are saying we don't think it is optimized for the close-support mission.

To answer directly, I do think it is unusual; and the only reason for the flyoff is at the urging of the Congress we are flying a prototype version of the A-10 against an aircraft that has been in the operational inventory for some years.

Mr. ICHORD. How many A-7's do we have in the Air Force now?

Colonel WALTER. At the end of 1974 there will be about 376 aircraft in the inventory.

Mr. ICHORD. 376?

Colonel WALTER. Yes, sir.

Mr. ICHORD. Of course the A-10 has a lot more loiter time than the A-7, doesn't it?

General EVANS. Yes, sir.

Mr. ICHORD. It will have a heads-up display system in it?

General EVANS. Yes; although not as sophisticated as the one in the A-7.

Mr. ICHORD. It will not have the sophisticated navigational and bombing equipments, either?

General EVANS. That is correct. It will not.

Mr. ICHORD. What is the A-10 designed to cost? About \$1.5 million?

General EVANS. \$1.7 million average unit flyaway for 600 aircraft in 1970 dollars is the design-to-cost estimate for the aircraft.

Mr. ICHORD. What is the cost of the A-7 coming off the line now?

General EVANS. The A-7 is—let me give you the numbers in then-year dollars, which may be more meaningful.

The average unit flyaway of the A-10 is \$2.4 million. The A-7 is \$2.67 million average, based upon the same quantity of aircraft. The estimated unit flyaway price for A-7's being procured in 1974 is \$2.9 million.

Mr. ICHORD. Thank you, Mr. Chairman.

Mr. MELVIN PRICE. Do you have any questions, Mr. Battista?

Mr. BATTISTA. Yes, Mr. Chairman.

With regard to your remarks on the Enforcer, General, you indicated that its takeoff capability is less than that of the A-10. We have some documentation here, and please remember that it is from the manufacturer, but in any event, he claims that the Enforcer in fact can take off on shorter, muddier fields where the A-10 cannot.

Is there any merit to that?

General EVANS. I think you would probably have to look at the bomb load. I was thinking of maximum gross weight takeoff.¹⁰

In the first place, the Enforcer cannot carry the bomb load of the A-10.

Mr. BATTISTA. That is correct.

With respect to survivability, and this is not the manufacturer talking here, this is the Navy's evaluation, they said they were conducting a survivability assessment, and they believe this turboprop aircraft could provide an economic cost-payload index and is attractive for close air support mission, provided their slower speeds are acceptable.

What is the comparison of the speed of the A-10, compared to the Enforcer?

General EVANS. I would have to check, the brochure. I think it is less than the A-10; somewhat less.

A-10 is redlined at [deleted] knots. I would imagine the Enforcer is close to that, top speed.¹¹

When you talk about survivability I think you have to compare it with some other aircraft. I am saying that the A-10 is much more survivable than the Enforcer.¹²

Mr. BATTISTA. The manufacturer's concern is the heat-seeking missiles, and the Enforcer has a low IR silhouette; considering the fact you have a prop on there that will enhance its radar cross sectional area; so it does depend on what you are addressing.

But there have been claims made in terms of performance.

What would be your feeling toward a flyoff of this aircraft?

General EVANS. I would be against it.¹³

Mr. MELVIN PRICE. For what reason?

General EVANS. We structured the A-X program to determine in competition what aircraft should best meet the close air support requirements of the U.S. Air Force. We set up certain specifications for that aircraft. We opened it up to competition, and Fairchild and Northrop were the two contractors selected. We flew off in a competitive prototyping phase the A-10 against the A-9, which was the Northrop airplane. The A-10 won that competition. With the approval of Congress we went ahead into engineering development of the A-10.

The Congress directed that we institute a flyoff between the A-10 and the A-7. We are doing that starting in approximately 2 weeks. That will be done before we continue with the engineering development of the A-10.

Now, we could continue to fly the A-10 off against aircraft like the Enforcer, and I am sure we could come up with other airplanes the manufacturer claims do a good job in close support. I don't think it is appropriate. It costs money. And I would like to know the reason behind spending money to fly the A-10 against the Enforcer.¹⁴

Mr. BATTISTA. Would it make better sense to fly the A-10 against the A-7 than it would against the Enforcer?

General EVANS. I think so, yes.

Mr. BATTISTA. What do you expect to learn from the flyoff, since you have so many subsystems missing on the A-10? What will you learn specifically from this \$5 million flyoff that you do not already know?

General EVANS. I don't recognize that price.

Mr. BATTISTA. That was the price we got from General Starbird. I believe the Air Force contribution is on the order of \$2 million; but the total is \$5 million.

General EVANS. I see.

I think we will get a feeling for the attributes of the A-10 over the A-7.

Senator Cannon said he wanted to get the opinion of operational-ready pilots firsthand on how they felt about the two aircraft. We will find out from them how the aircraft reacts under low-ceiling conditions, its maneuverability.

Mr. BATTISTA. Do you need a flyoff to determine those factors?

General EVANS. The Air Force did not think so.

Mr. BATTISTA. Do you think so?

General EVANS. No, I don't think so.

Secretary LABERGE. I think if you ask is it important to convince the Members of Congress by a test that they believe in, to that extent I think it is important. The Congress decided it wanted it, and I think we want to conduct it in a fair way; and in making sure it is fair it gets to be fairly expensive.

I hope we don't have to do this any more times than are really necessary, because it is expensive, and it causes a delaying process.

Mr. BATTISTA. With regard to the Enforcer—and I know you are not in a popularity contest—I quote a newspaper article from the Apalachicola Times:

CONGRESS LOSES WEAPONS FIGHT

A WEAPONS MYSTERY? SENATORS THWARTED? AIR FORCE BEHAVIOR? OPPORTUNITY LOST?

"WASHINGTON, D.C.—Behind closed doors in the Pentagon in recent days the Air Force and others have managed to prevent issuance of an order to test a promising, really inexpensive close air support weapon developed wholly with private funds."

And it goes on and on.

Looking at a comparison parameter by parameter, it would indicate that there is a basis for concern.

Mr. Chairman, I would like to leave it at that.

ATTACHMENT II

[From Aerospace Daily, July 3, 1974]

ENFORCER DEBATE: AF TURNS THUMBS DOWN ON FURTHER TESTS

The Air Force sharply rejected a demand by Rep. Les Aspin (D-Wis.) that the Enforcer, a turboprop modification of the North American P-51¹⁵ be given further consideration for the close air support role in competition with the Fairchild Industries A-10.

Aspin, a member of the Senate [sic] Armed Services Committee, had urged that Congress order flight testing of the Enforcer and compare its performance with that of the A-10 as "the only way to determine the facts."

The Air Force replied by quoting Chief of Staff Gen. George S. Brown who told a congressional committee: "I personally would not be a party to asking an American pilot to fly it (the Enforcer) in the defenses that they are going to be exposed to should they ever have to go to war again."¹⁶

Aspin charged that the Pentagon had given Congress "contradictory and misleading information" on the capabilities of the Enforcer, which is backed by a group headed by editor/publisher David G. Lindsay Jr. of Sarasota, Fla. Aspin claimed that the Enforcer would cost slightly more than \$1 million each while the A-10 unit cost is set at \$3.4 million.

Replying to Aspin's call for full-scale tests, the Air Force noted that the Enforcer was evaluated during the Pave Coin project in 1971. And, according to testimony before the House Armed Services Committee earlier this year, Lt. Gen. William Evans, chief of research and development, said "from an operational standpoint Enforcer was judged to be marginally suitable; however, if roll response and dive speed control deficiencies were corrected, it promised to be a suitable airplane for the light strike aircraft role. But so were the other candidates (American Jet Industries/Aeronca Super Pinto, Cessna A-37B and Rockwell OV-10) after their operational deficiencies were corrected."

"From a technical standpoint," Evans testified, the Enforcer required considerable engineering effort to remedy roll performance deficiencies, incorporate an effective speed brake, incorporate redundant features in the flight control system, redesign the cockpit¹⁷ and validate the structure."

LISTS DRAWBACKS OF CAS ENFORCER

He went on to say that "Before the AF could make an assessment of the Enforcer for a close air support application using current CAS simulation models, many assumptions would have to be made on the projected capabilities of the aircraft."¹⁸

¹⁰⁻¹⁴ The above footnotes refer to portions of the analysis sheet presented by Mr. Lindsay. See p. 17.

"The Enforcer lacks the sophisticated armor and fuel protection necessary to operate in the European threat environment. It also lacks range/loiter/payload capabilities of the other candidate aircraft.^{5a} Finally an electro-optical display and carrier capability compatible for use of the Maverick missile would be required. Installing these features on such aircraft for the CAS mission was found to be imprudent."^{6a}

Aspin, in his statement, characterized Evans' testimony as "so misleading and, in part, untrue, that I have no choice but to conclude that his actions were deliberate."

But as a result of the recently completed tests at Fort Riley, Kans., the AF has not changed its mind, saying the A-10 was developed "specifically to provide close air support for ground forces and this design includes recent technology while the Enforcer aircraft is based on technology more than 30 years old."^{7a}

It also denied it had furnished Congress misleading information,^{8a} as alleged by Aspin.

In the "principal factor in effective close air support—lethality" the new plane is equipped with a 30 mm rapid fire cannon "which is capable of killing tanks," while the Enforcer has 50 caliber machine guns "which are ineffective against tanks and other armored vehicles."^{9a}

The A-10 also has heavy armor plating and redundant systems^{10a} "which will continue to operate despite an aircraft hit by enemy fire" for survivability on the battlefield and "the store station of the A-10 permits it to carry a significant amount of countermeasures against defenses which cannot be accommodated on the Enforcer."^{11a}

The A-10, in fact, the rebuttal continued, "is capable of carrying up to eight tons of conventional ordnance. The Enforcer's maximum ordnance load is 5,480 pounds. The A-10 will also carry the Maverick air-to-ground missile^{12a} which has proven to be a highly effective stand-off weapon against armored vehicles and other hardened targets."

Also the A-10's avionics system "permits the use of laser and electro-optically guided bombs which the Enforcer would not handle."^{13a}

The enforcer, however, has a ferry range of 3075 miles, 475 more than the A-10, the service conceded. But if the planes are compared in combat configuration "the picture is dramatically different. The A-10 can carry over 9500 pounds of ordnance 250 miles and loiter for two hours. The range of the Enforcer, based on contractor furnished data, is limited when carrying a useful ordnance load. With 4760 pounds of ordnance, the Enforcer's range is 119 miles with a 15-minute^{14a, 15a} loiter time." Takeoff distance of both planes is the same with similar external loads, the AF said.

The answer did not address Aspin's claim that Enforcer would cost slightly more than \$1 million while the A-10 is running \$3.4 million each. And he suggested a flyoff, commenting "I think it may be difficult for the AF to prove that the A-10 is three times better than the Enforcer."

ATTACHMENT III.

Capt. M. W. Townsend, USN
OSD/DDR&E (Tactical Warfare Program)
Assistant Director, Air Warfare
The Pentagon—Room 3E1047

Mr. PRICE. We have a rollcall vote on the House floor, so the committee will suspend for 15 minutes and then return for the questioning of the witness.

Mr. LINDSAY. Fine. Thank you, Mr. Price.

[The subcommittee recessed at 3:02 p.m., and reconvened at 3:14 p.m.]

Mr. PRICE. The committee will be in order.

The committee will resume its business at this sitting.

Mr. Lindsay, in your letter to me which you mentioned in your statement and Mr. Sim's letter to Chairman Hébert, you asked to appear before our committee to correct discrepancies in the Air Force testimony concerning your aircraft.

Would you define and clarify the points in question?

Mr. LINDSAY. Yes, sir.

^{14a-15a} The above footnotes refer to portions of the analysis sheet of Mr. Lindsay. See p. 17.

I think perhaps I can pass the letter, since you have that copy, each of you.

I do express the reason I feel I have to clarify it, because it represents 6 years of my life and quite a bit of investment. But the Air Force in appearing here on April 5, which we didn't learn about until somewhat later, made some rather gross misstatements. It was General Evans, Chief of R. & D. And I have attached an analysis sheet. I put a number beside his statements in your folder, and then I have put my April 5 rebuttal.

[The following information was received for the record:]

ANALYSIS OF USAF STATEMENTS TO CONGRESS, APRIL 5, 1974, AND TO AEROSPACE DAILY, JULY 3, 1974

Attached to this analysis is a copy of testimony given before the House Armed Services Subcommittee No. 1 on 5 April 1974 by Lt. General W. D. Evans, and also a copy of an article in *Aerospace Daily* for 3 July 1974, in which Air Force spokesman rebut statements made to the Congress by Representative Aspin of Wisconsin.

In the margin of the testimony, I have marked numbers for convenience in referencing.

In Reference 1, General Evans states, "The airplane does not have the survivability . . . we feel is necessary in a close air support airplane, where it will be exposed to air-to-air as well as surface-to-air missiles."

FACT: The analysis by the NASC and the Joint Test Coordinating Group for Air Survivability completed earlier this year rates the Enforcer as one of the two least vulnerable aircraft in the world (The other is the A-10). It has more armor per pound of air frame weight than any other aircraft, is a very small target, has 360° cockpit visibility from the horizontal, and the capability of turning into attacking aircraft to defend itself with its guns or with missiles such as the Sidewinder.

In Reference 2, General Evans states, ". . . The range of the aircraft is limited." FACT: The range of the Enforcer, unrefueled, is longer than any aircraft in its category, including the A-10.

In Reference 3, the General states, ". . . the ability to take off from unimproved short strips with heavy bomb loads is extremely limited." FACT: The DOD/NASC analysis just completed confirms the Enforcer's ability to take off with a full load from unimproved short fields on a standard day in 2900 feet, as against 3850 feet for the A-10 on hard surface.

Reference 4, the General states that "its loiter capability is well behind the A-10." FACT: The Enforcer can loiter burning as little as 550 pounds per hour of fuel, and it has 2800 pounds of internal fuel. It also has six under wing wet stations should drop tanks be necessary.

Reference 5: General Evans, in this paragraph, attacks the Enforcer's maneuverability, loiter capability, maintainability, survivability, ability to operate off unimproved strips. FACT: The DOD analysis shows these items referenced to be the strongest points of the Enforcer—and superior to more sophisticated and expensive aircraft.

Reference 6: General Evans states that when the aircraft was flown in 1971 when a Vietnamization plane was sought, ". . . In evaluating it, we determined it was not suitable." FACT: The Enforcer in actual flight exceeded all the requirements of PAVE COIN, except the technical specification for visibility over the nose.

References 7, 8, and 9 were "submitted for the record" after General Evans' testimony, and contain a number of misleading statements, including an indication that redundant control system factors are not included, which the analysis shows to be an incorrect statement. He also says that "redesign of the cockpit" is necessary. The cockpit includes a Yankee rocket extraction seat, and it meets the requirements for the Stencil ejection seat now preferred by some of the services.

In Reference 9, the statement is made that the Enforcer "lacks the sophisticated armor and fuel protection necessary to operate in the European threat environment." FACT: The Enforcer's armor is a sophisticated ceramic/composite-fiber which breaks up projectiles and contains spalling. Armor ingrades up to 23mm defeating in the most crucial areas is provided, and the extent of the armor includes the entire lower 180° of the engine, the wheel-well area containing the hydraulic components, and front, rear, side, and bottom protection for the pilot.

A statement is made that it lacks "range/loiter/payload capabilities of the other candidate aircraft." FACT: The Enforcer's ability in range of action and loiter at low and medium altitudes is unexcelled.

Reference 9 also states it would be "imprudent" (Note: it is not said to be *impossible*) to install electro-optical display and carriage equipment for the Maverick missile. FACT: The USAF Weapons Test Center at Eglin AFB has briefed Enforcer engineers on all necessary information for installing up to six Mavericks on the Enforcer, and the designer has the necessary wiring diagrams for the cockpit installation.

Reference 10: Because it does not have a nose wheel to dig-in on muddy fields, the Enforcer can, and has demonstrated, its ability to take off on shorter, muddier fields than the A-10, which has been restricted to hard-surface.

Reference 11: General Evans, in referring to the comparative speeds of the two aircraft, states of the Enforcer, "I think it is less than the A-10." FACT: The DOD evaluation credits the Enforcer with somewhat higher speeds than the A-10.

Reference 12: General Evans states, "I am saying that the A-10 is much more survivable than the Enforcer." FACT: The Enforcer is approximately one-third the target size of the A-10. Its engine is heavily armored while the A-10's two large fan jets have no significant armor protection. The JTCG/Air Report credits the Enforcer with at least equal survivability to the A-10, even without allowance for its smaller size, which would clearly be vitally important in combat.

Reference 13: General Evans states, "I would be against a fly-off of the Enforcer," but specific reasons for this position are significantly lacking.

Reference 14: When asked if it would make better sense to fly the A-10 against the A-7 than the Enforcer, General Evans said, "Yes, I think so." FACT: In the A-10/A-7 fly-off, eight times as many hits were scored on the A-10 as the A-7. The A-7 was not designed specifically for close support, but as a deep strike and interdiction aircraft. Both the Enforcer and the A-10 have close support as primary design mission.

The *Aerospace Daily* article repeats many of the incorrect statements of the testimony. It goes on to say in *Reference 7A* that the A-10 "design includes recent technology, while the Enforcer is based on technology more than 30 years old." FACT: Neither aircraft was designed to push the state of the art significantly, but to provide simple, reliable machines for the extremely hazardous task of close air support. Both aircraft are based on technology that in some cases goes as far back as the Wright Brothers. The Enforcer contains a number of highly advanced but uncomplicated features, patented by David B. Lindsay, including ordnance controls in the peripheral view of the pilot; engine exhaust system which compensates for propeller torque and P-factor and which injects cooling air after the burner section of the engine to reduce the infra-red signature. It also is equipped with the latest Hamilton-Standard three-spool air conditioning equipment, unexcelled armor, solid state electronics, and other features of current design.

Reference 8A does not cover the problems of the 30mm cannon, and *Reference 9* fails to point out the Enforcer's ability to carry a variety of gun pods, CBU, rockets, guided missiles, and guided bombs.

Reference 10A of the news release implies the Enforcer does not have heavy armor and *Reference 11* erroneously states the Enforcer's store stations cannot accommodate countermeasures against defenses.

Reference 13A incorrectly states that the Enforcer will not handle laser and optically guided bombs. FACT: The USAF Weapons Center has stated that the Enforcer will handle any non-nuclear ordnance in the weight category of 1000 pounds each or less.

Reference 14A says the range of the Enforcer is "limited" when carrying a useful ordnance load.¹ A review of the DOD analysis will show the Enforcer's radius of action, even in the low-low-low mode of attack is superior to any other candidate aircraft.

Reference 15A, the statement that with 4760 pounds of ordnance the Enforcer's range is 119 miles with 15 minutes loiter time is incorrect, as the NASC analysis shows.

The statement that the takeoff distance of both planes is the same with similar external loads ignores the fact that to achieve an equal takeoff, the A-10 must off-load a large percentage of its internal ammunition and its internal fuel to equal the Enforcer with full external and internal ordnance and fuel.

Mr. LINDSAY. I think probably it would be excessive to try to go through each one, but I think I might take some of the more extreme ones and point them out to you.

In reference No. 1, he says, "We do not feel the aircraft will have the survivability in a close air support environment where it would be exposed to air-to-air as well as surface-to-air missiles."

I had worked for the better part of a year with the Naval Air Systems Command and this joint test survivability group, and they have not given me a copy of their report, but they did tell me that the Enforcer, since it is so simple and since its armor is so outstanding, is one of the most survivable planes in the world and one of the two least vulnerable. The other, they feel, is the A-10.

Now, it should be self-evident it is survivable in that it has more armor per pound of airframe weight than any other aircraft. The empty weight of the airplane is 7,700 pounds, 1,500 pounds of which is a very fine structural armor which will defeat 23 millimeter shells and which has been extensively tested by the U.S. Navy. And the project officer whose name is given to you in the rear of the sheet, Capt. M. W. Townsend, in D.D.R. & E., has investigated with the armor manufacturer and actual Navy samples and has samples of the armor and concurs.

The armor is particularly good because it doesn't just stop some of the bullets or allow the heat projectiles to cause splinters or spalling inside. It is the ceramic face which breaks up the round, and then the fibers behind it contain the rounds to the great appreciation of the pilot.

So I think that statement is clearly not defensible.

Then General Evans states in reference 2, the range of the Enforcer is limited. Actually, the range of the Enforcer unrefueled is longer than any aircraft in its category including the A-10. This has been since verified by D.D.R. & E. and Air Force concurs after some prodding by Congressman Aspin that the actual range is something like 425 miles more than the A-10.

The General states in reference 3, the ability to take off—

Mr. PRICE. Was that with a full ordnance mix?

Mr. LINDSAY. Negative, sir. They were both compared as apples and apples; namely, in the ferry mode, their longest range, which has to do with their ability to be operated worldwide without refueling. If you can jump from California to Hawaii, you can go anywhere else without tankers.

Mr. PRICE. Can you give an estimate of the range with a full ordnance mix?

Mr. LINDSAY. Well, that is a three-way equation. And I certainly can give you examples of it in almost any configuration you might want. I think it is reasonable, however, for me to admit here and now, quite straightforwardly, that we make no pretense of competing in load-carrying ability with an aircraft the size of the B-26 bombers.

The A-10 is roughly three times as big as the Enforcer, and we feel that we can carry all the ordnance load that is necessary for the type of standoff weapons which are constantly being improved and lightened, and we don't see ourselves as competing with 16,000-pound loads of Mark-82 profile iron bombs. We have carried that type load, and we dropped it—not that many, but we can carry a sufficient num-

ber. We see our role as working upward near the front with the infantry and carrying standoff weapons that can stand off from the QUAD-ZUS-23-4 and SA-7.

We don't really believe there is anything you can do with a load of iron bombs in today's highly lethal close support area in the central European environment. So I want to make it clear any comparisons of gross loads versus the A-10 or any other big jet, we are not making. We are claiming we are light and agile and forward-operating. That may sound like an evasion but all these loiter and time missions have to be done on a graph.

You pick out how much ordnance you want to carry and read out how far you can go.

Mr. PRICE. Mr. Battista.

Mr. BATTISTA. There are three parameters that are of primary concern here, loiter, pay load, and range. In your statement you said that you have been told that there is a requirement for your aircraft, however, you state that there is no need for it.

The Air Force does have not only the need for close air support aircraft but a requirement as well. For example, the requirement to go a certain range with a certain payload. Now granted you can't carry a 16,000-pound ordnance load, but considering these three parameters, what is your range and loiter time with a full Enforcer ordnance load?

Mr. LINDSAY. Well, with a full Enforcer ordnance load we had used a somewhat lower gross weight than the Naval Air Systems Command has ended up with. But, for example, at 4,100 pounds of ordnance, loitering low at 5,000 feet, we have a mission radius of 200 nautical miles and that includes in addition 10 minutes of combat at full military power, and the remaining fuel for reserve according to Milspec requirements.

Mr. PIKE. What was the loiter time on that? I got the range and the 4,100 pounds of ordnance, but what was the loiter time?

Mr. LINDSAY. The loiter time was approximately 2 hours.

Now, I think, sir—let me give you what I think might be a normal mix of loads for a close air support mission. We might well carry, say, four Maverick missiles, which is 2,000 pounds for the four of them. And then we might carry, say, four rocket pods, 19 rounds each. I'm pulling these out of the air. There are any number of pieces of ordnance that could be put on. That would give us another 1,700 pounds. So we would be around 3,700 pounds. At that weight we can fly 3,500-mile radius missions at a loiter of an hour and a half.

I might point out that the charts which you are looking at in this 1971 book are less than the credit we have been given by the Naval Air Assistance Command. You notice that has a takeoff gross of 14,000 pounds. They have allowed us a takeoff gross of 15,500 pounds. Unfortunately I don't have all of their data here. The project officer has it. Naval Systems Command has it. I'm sure Air Force has it. Marine Command has it. I'm having to work from older data.

Loiter would be better than shown in the figures I'm giving you.

I might also point out if we are going to talk about the real world, we might as well talk about comparing airplanes on a dollar-for-dollar basis. If there is a need to carry 16,000 pounds of ordnance, if you will put the same number of dollars into Enforcers as you will into A-10's we will carry as much or more than they will and also have the redundancy, in case one gets shot down, to get through.

Mr. PRICE. Would you go ahead with your summary of the different references?

Mr. LINDSAY. Yes, sir.

One of the ones which I think is really quite bad is, he says that the ability to take off from unimproved short strips with heavy bomb loads is extremely limited.

Now, my answer to that, which has been verified by D.D.R. & E. is that the DOD-NASC analysis just confirms that the Enforcer's ability to take off with a full load from unimproved short strips on a standard day is 2,900 feet. That is at 15,500 pounds gross on unimproved fields.

Mr. ROBERT PRICE. Mr. Chairman.

Mr. MELVIN PRICE. Mr. Price.

Mr. ROBERT PRICE. I would like to ask the same question at that point.

Now, again, you say what, 4,000 pounds is the Enforcer's full load under these conditions?

Mr. LINDSAY. No. The load is a bit higher than that under the Naval Air Systems Command. They are showing it with an ordnance load of 5,480 pounds.

Mr. ROBERT PRICE. 5,480 pounds compared with A-10, the 16,000 pounds?

Mr. LINDSAY. Yes; that is what I understand they are claiming. But they cannot operate off of a forward soft strip, although they originally had programmed it that way. They now do not claim that ability. The new scenario is they will operate from the rear and come forward. My scenario is somewhat different. Since our loiter fuel consumption is an incredibly low 550 to 600 pounds, we feel that it is not too expensive to keep the aircraft airborne most of the time in the form of flying shotgun or suppressant over what may be moving on the ground.

Historically there have been less instances of firings than hits when the aircraft are there, rather than calling them in late. We would like to think we would be very useful in escorting helicopters because we can operate at their speed, and we can operate either slowed down with them or we can operate a four-man formation, where there is always a gunmount pointed at the ground. Obviously helicopters are limited in the degree of lethality they can take because of the limitations on armor and their vulnerability in fuel tanks and in rotor blades. There is a big gap between what they can take and what we can survive in a reasonable percentage of the time.

Mr. MELVIN PRICE. Has the Enforcer ever taken off from an unprepared field?

Mr. LINDSAY. Oh, yes, sir; many times.

Mr. MELVIN PRICE. What was the performance?

Mr. LINDSAY. The performance was as stated here, sir.

Mr. MELVIN PRICE. Do you want to go to your next reference?

Mr. LINDSAY. Stop me if I bring up too many of them.

Mr. MELVIN PRICE. Bring up what you consider to be essential in answering any of the points that were raised by the Air Force.

Of course, all of these will be with your material in the record.

Mr. LINDSAY. Yes, sir. I appreciate that, Mr. Price.

Reference 6, General Evans states when the aircraft was flown in 1971 in Pave Coin, "In evaluating it, we determined it was not suitable." That is simply not a factual statement. The Enforcer in actual flight exceeded all the requirements of Pave Coin except the technical specification for visibility over the nose, which I think most pilots realize is not that all important because you are usually weaving around the sky anyway. We actually flew the missions, including a quite remarkable mission at night with zero moon, in which the Air Force pilot, right out of Tactical Air Command, went out at night, called off the flare plane which was a C-130, he called off the forward air control plane. He said, "I will find the target, light the target, and eliminate the target."

He went out and dropped flares at 4,000 feet, and because of the incredible ability of this plane to turn tightly, it will turn at 150 knots in 800-foot radius, he dropped back under those flares, found the convoy which was the target, and destroyed it, using napalm. And the ground crew said, "Isn't it time to give him a fuel warning?" They said he hasn't started yet. He spent three-quarters of an hour strafing the area with 50-caliber machineguns.

There are many things that surprise them; they forget about the internal guns. It was a very remarkable mission. That pilot was not allowed to write his own flight report. It was written for him at TAC headquarters, and it caused some repercussions.

Consequently, D.D.R. & E. made an investigation of Pave Coin, as we did not get a fair report. We actually won it, and no award was made from Pave Coin. Everyone lost, you might say.

The statement is made flatly in references 7, 8, and 9 that the A-10 contains a number of features which we do not, including redundant systems. The fact of the matter is we do have full redundant systems, and that is shown in the NASC report that controls are not hydraulic, they are not pneumatic, they are stainless steel cables, and they are redundant in all axes; and the statement of the NASC, which I don't concur with, is they would consider eliminating some of them because the likelihood of shooting out the cables is so little.

I would personally prefer to see them stay in. We do have them, and he made the statement we don't.

He also made the statement in reference 9 that is most damaging. He says it lacks sophisticated armor or fuel protection necessary to operate in the European theater environment. Gentlemen, nothing could be further from the truth. The Enforcer's armor is a sophisticated ceramic composite which I described to you as breaking up the projectiles. It also has the advantage it can be formed as the cowling of the engine. We actually armor the whole lower 180 degrees of the engine. We armor the pilot against 23 millimeters. We armor the wheel-well areas where the hydraulic components are located. In fact, the wheel-well doors are made of armor.

And one of my little, simple ideas was rather than buying expensive oxygen bottles that won't blow up, take standard oxygen bottles and put them in a box of armor. We have a box of oxygen in armor. We are heavily armored. This has been tested by the Navy for up to defeating 57-millimeter heat projectiles. The project officer can fill you in on that if you would like the staff to look into it.

Mr. ROBERT PRICE. What about the sides of the cockpit with regard to the armor, and the canopy?

Mr. LINDSAY. There is no canopy available to the best of my knowledge in any aircraft which is actually capable of stopping armor-piercing ammunition.

Mr. ROBERT PRICE. What about the sides, when they turn over?

Mr. LINDSAY. We are sort of in the same place as any other plane. When you are upside down and someone shoots through the canopy, something is likely to rattle around the cockpit. But we do have the same bulletproof windshield, windscreens. We have the latest non-shattering canopy, the top state of the art, made by Sierason.

Mr. ROBERT PRICE. I thought the A-10 had some kind of an armament on both sides, more or less like a helicopter.

Mr. LINDSAY. I see. I thought you meant up at the level of the pilot's shoulders. We have side armor, rear armor, forward armor, and underneath. It is the same bathtub concept except we think a little more sophisticated in that we did a study of hit probability areas, and used the armor to also armor certain components such as the batteries and the hydraulic fluid and things of that kind.

Mr. ROBERT PRICE. Are your control hydraulic and fuel lines on the bottom side?

Mr. LINDSAY. Yes.

Mr. ROBERT PRICE. A-10 comes along the top side.

Mr. LINDSAY. Ours are all in the lower area, concentrated in the wheel-well area. By the way, if the hydraulic system is shot out, you simply pull a release lever and the gear drops by gravity.

Mr. MELVIN PRICE. The committee will recess until we make this record vote, and then return.

Mr. LINDSAY. Thank you.

[The subcommittee recessed at 3:35 p.m. and reconvened at 3:50 p.m.]

Mr. MELVIN PRICE. The committee will resume its sitting.

Mr. Lindsay, you had just completed your comments on reference 9.

Would you continue from there? I think if we could speed up your part of it, then the members I know have some questions they want to ask, and we can try to be in a position to conclude when the next bell rings.

Mr. LINDSAY. All right, sir.

On reference 9, he states that it would be imprudent to install equipment for carriage of the Maverick missiles. We went to Eglin Air Force Base with the airplane, and while we were there, that airplane was taken away from us and was jacked up and statically was fitted and statically dropped for everything that they had currently in the inventory or under consideration. It was cleared for all of them. Some are classified, and I don't even know what they were. But among the ones I know we were cleared for is the Maverick missile and the Rockeye, which I think are two of the most effective antitank weapons available to us at the present time.

He states we cannot handle the Maverick, so I have to correct that.

Mr. MELVIN PRICE. Would the cockpit be able to take the display?

Mr. LINDSAY. Yes, sir, it would. In any cockpit it is always a question of finding the space. I have gone into them with the sergeant installing them in the aircraft, and there seems to be no problem.

I will pass on some of these that are opinion. He is certainly entitled to his opinion. I would like to point out, though, going beyond the committee, that this Air Force misinformation also found its way into the trade publications, and therefore I attached Aerospace Daily where the Air Force rebutted the comments made by Representative Aspin. I had not solicited those comments, but they were certainly very pertinent.

They compounded their errors, and I have given you—I have marked in yellow some of the things which are incorrect, and in 4-A and 5-A they state that it lacks sophisticated armor and fuel protection necessary to operate in the European environment. This is the public press which is read by everyone in the Embassies where we would hope to begin sales for offshore aircraft. It is read by all the other manufacturers that might want to bid on building the airplane, or its sub-components, and it is hurtful.

So what has happened is the Air Force misinformation has now found its way into the public press, and even while I'm doing my darndest to avoid fighting the A-10, which I don't want to do, I would like to supplement it. In the July 31 issue of Aerospace Daily, which I'm sure you gentlemen are familiar with, there is a half page and more by Fairchild executive Tom Turner, who as I thought was an old friend of mine and an excellent salesman, and he makes some of these same statements that we don't have armor, we can't carry Maverick, and of course he does say we can't carry the 30-millimeter cannon, and we certainly wouldn't try to. That is a monster thing.

With that, sir, I'm open to questions.

Mr. MELVIN PRICE. Mr. Pike.

Mr. PIKE. Mr. Chairman, before I ask Mr. Lindsay any questions I have got to, in fairness to the other members, inject a small personal note here.

I have been very interested in this aircraft for a long time. I have been down to Vero Beach to see it, and I wholly agree with Mr. Lindsay that the Air Force never gave the Enforcer a fair and reasonable comparison evaluation at the time of the so-called Pave Coin competition.

It was a nonexistent competition, in effect. They never announced any results. They never established any parameters. They just went around and spent a lot of money for parts and planes. I guess it was contractors' money largely.

Mr. LINDSAY. I'm afraid that is the case.

Mr. PIKE. Mr. Lindsay and I, however, came to the parting of the ways when it was alleged in this subcommittee that we should take the money out of the R. & D. budget for A-10's and put the money into Enforcer.

Mr. Lindsay wonders why it was determined by some people a threat to the A-10. Some people tried very hard to make it a threat to the A-10, to stop building that one in order to build this one.

There are things, obviously, which the A-10 can do that the Enforcer cannot do, and Mr. Lindsay has obviously conceded that. I do think, however, that there should be a real evaluation of this aircraft for a different role than that of the A-10. The role, as Mr. Lindsay sees it, of operating off small fields, close to the combat lines, and I think we make a mistake in defense if we just assume that Viet-

nam-type wars are never going to happen again because if I were a Communist leader that is all the kinds of wars I would ever be thinking about because they are the ones we do so badly in and they do better.

If I were a Communist leader I would be considering these wars of national liberation, as they call them, as the only way to go. In a jungle-type environment, with small, rough airstrips, I believe that a plane like the Enforcer could perform a very useful and definite mission.

Mr. Lindsay, have we yet had the statistics on the total loaded range—fully loaded range—fully loaded with weapons, that is, range of the Enforcer, as opposed to the fully loaded range of the A-10's?

Mr. LINDSAY. No, sir, I don't believe we have because my data does not gibe exactly with the Naval Systems Command, and I would like the privilege of supplying that for the record. I would have to be qualified in this fashion; what kind of weapons do you want to consider?

Mr. PIKE. All right. I want to consider—let's take a mix—let's take the maximum weight that you can carry in iron bombs, and the maximum weight that they can carry in iron bombs, and give us the statistics on the range of each. Then take any other combination of weapons that adds up to the maximum weight that you want to, and give us the range.

Mr. LINDSAY. I would be very happy to do that. I would like to suggest that I be allowed to present a suggested mix, in that quite a few Air Force officers with combat experience have told me that they in fact, even in Vietnam, did not use these 1,000-pound bombs, as loads, and that sort of thing. They were essentially going out with the more sophisticated weapons with CBU, with ECM-PODS, with rockets, with gun pods, and I would like to give you exactly what you are asking, but also supplement it with what I think might be a more practical mix for close air support.

Mr. PIKE. All right.

I can't quite understand whether you are still saying that this is a close air support aircraft for the European theater operation or not.

Mr. LINDSAY. I'm glad you asked that question. I started this aircraft for Vietnamization, to replace the A-1 Sky Raider which did a superb job.

Mr. PIKE. So you said.

Mr. LINDSAY. Yet, as I got into it, and after Pave Coin fell apart as you know, I continued to study. I went over to Europe and talked to the people at SAAB, I talked to the people in France, the head of the NATO Air Force, and I began to realize there is a place for the airplane in the European theater as well as the foreign nations.

In an aircraft, which if carrying this terrifically heavy armor that we can carry, utilizing the latest lightweight standoff weapons and utilizing ECM-PODS, et cetera, which we can carry, can survive in the European theater using a combination of nap of the Earth, helicopter-like tactics coming in very low, which a propeller-driven can do because of its higher efficiency at low altitude. I think we can do a good job, which I hadn't really thought about.

This is a supplement to my original design.



Now, I feel that since the A-10 prices are so high, maybe it could fit into our inventory in the Hi-Lo mix range.

Mr. PIKE. I would be more impressed with your prices figures on the A-10 if I had not evolved a few figures of my own recently, and that is that for every plane we've got in the Air Force we seem to need 14 officers. I wonder what you are considering as the backup costs involved in an equal buy in dollars of your planes as opposed to A-10's? What are you computing in there for pilots and maintenance? Are you computing anything?

Mr. LINDSAY. Yes, sir, I am. I have given considerable thought to that. It comes back in two phases. One, it is much simpler to teach a pilot to fly this essentially simple airplane.

Mr. PIKE. That doesn't cost anybody. We are paying the same. We may train him a little less but we are paying the same.

Mr. LINDSAY. We can use our offshore allies. I believe one of the Congress' positions and the administration position has been as far as possible in future wars of liberation we will try to supply the hardware as the Russians have done and let the locals do the fighting.

The Indonesians, for example, can do a beautiful job flying this airplane—very, very capable of flying it. Even the South Vietnamese, as small as they were, were flying A-1 Sky Raiders as well. This is about one-third as hard to fly.

Mr. PIKE. Assume we wanted to sell some or give some to the Indonesians. What would they buy instead of, an F-5?

Mr. LINDSAY. An F-5 is an aircraft not designed for close support and would not really have close air support capability.

Mr. PIKE. One of the difficulties I have again with your plane, and the profiles used, you have given us, shows it best, is the visibility problem. You've got a lot of nose sticking out there in front and under that cockpit for looking down on ground targets.

It is, as you concede and as we all recognize, a derivation of a World War II aircraft which was also an air-to-air aircraft and not a close support aircraft. It looks like an air-to-air aircraft. So that again is one of the difficulties I have with your airplane.

Mr. LINDSAY. I would like to try to answer that.

The visibility directly over the nose is not sufficient at present for the delivery of lay-down weapons. That would be a tradeoff against the fact we have excellent visibility to the rear by protecting ourselves by turning inside a jet that might venture down to our low altitude arena and release a Sidewinder equivalent on us.

The aircraft which puts the pilot up in the very nose has very little visibility to the rear so it is a tradeoff. As far as the general visibility, the nose is so narrow and you sit so high and the nose rides so low in actual flight that the visibility, the minute you get off directly 12 o'clock in front of you and get over to 11 o'clock or 1 o'clock, your visibility is excellent.

And at the same time you are almost always jinking around in the sky in some form.

Mr. PIKE. Jinking around? But when you deliver your ordnance that is when you need the visibility in front of you?

Mr. LINDSAY. For a lay-down weapon, yes; you are quite right. A CBU weapon, a fuel-air explosive weapon, would probably, you would have to develop a technique of sighting down the side, and probably a count-down system. I think this could be devised. I don't

think it is as good for that one mission as something like the A-10 or the A-4, which has excellent over-the-nose visibility. But it is an awful comforting feeling to the pilot to have all that out in front of you. And from a safety standpoint, remember I have no fuel whatever in the fuselage of this airplane. I don't have a hot engine back of me and a lot of fuel in a tank. And if I should get hit low, and have to belly the airplane in, that engine and that nose that is affecting visibility is going to break its way through the underbrush, clear a path for me and I'm going to step out of the cockpit, instead of having the engine and fuel following the laws of physics compress on me, and blow up.

That is why we don't intend to eject under most conditions. We would tend to avoid ejection. Because the airplane with that weight up ahead and the armament can be belly-landed very successfully.

Mr. PIKE. Do you have an ejection seat?

Mr. LINDSAY. The present seat installed is the Yankee extraction seat. The reason it is that seat is because it is the one the Air Force asked us to put in. I previously spent 3 days at Wright-Patterson Base, going through the life support system.

Mr. PIKE. I think you better stop talking shorthand to us and explain these features a little more.

Mr. LINDSAY. Well, thank you.

The Yankee seat is the one most popular in Southeast Asia. It is a seat where the rocket is fired first and pulls the pilot from the cockpit. Rather than compressing his spine with the usual problems of fractures and compression, it tends to be much easier on you to be extracted than kicked out with a rocket.

A classic example of the opposite is this Martin-Baker ejection from a Harrier on the cover of the current Aviation Weekly. In that case the pilot is undergoing a tremendous number of G's on his backbone. You know the results of that. We can accommodate this other seat. The name Stencil is the name of the designer of the seat. It is a good seat. The seat that is used in the Harrier is a British-built Martin-Baker, which is probably the most widely used and widely known. It has a tremendous save record. But we have checked our cockpit for accommodation of other seats, I have looked at the Escape-Pack at North American, and the Stencil seat. That is merely a matter of service choice.

Mr. PIKE. That is all I have.

Mr. MELVIN PRICE. Mr. Dickinson.

Mr. DICKINSON. Thank you.

By way of observation it would seem from what you have said here, and what I have read also, grossly misused sometimes. I would for one like to see competition.

In talking with Army pilots and Army people, the guys on the ground as well as helicopter pilots, there is no secret that they are very unhappy at being forced to rely on the Air Force for ground support.

It would seem there are two things wrong with your situation, or two things that have come together—at least the two—to put you in this unhappy plight.

One is you are caught in the clash of roles and missions between the two services.

The Air Force would be very reluctant to give up their fixed-wing priority. The Army, I think, would be glad to assume it, but I don't know how realistic it is to think this is going to come about.

Probably another problem you have is you don't charge enough for your airplane. If it were \$2 or \$3 million, I think the Air Force would be more likely to buy it than just something that sells for \$650,000. That seems to be the history of the thing.

I'm very impressed with what I have heard. Mr. Chairman, for the life of me I cannot reconcile, nor can I understand, the direct variance of the facts this committee has been given. Either Mr. Lindsay is correct and can be proven so, in which case General Evans was telling us, based on what I know, many erroneous facts; or Mr. Lindsay is wrong and General Evans is right. I think we should find out what General Evans was basing his evidence on. If he is at fault in giving us erroneous information, I think we ought to look into that. If Mr. Lindsay is wrong, we will need to know that, too.

[Note. The Air Force submitted the following letter concerning General Evans' testimony.]

DEPARTMENT OF THE AIR FORCE,
OFFICE OF THE SECRETARY,
Washington, August 26, 1974.

Hon. WILLIAM L. DICKERSON,
House of Representatives.

DEAR MR. DICKINSON: This is in response to your request for information regarding Lt General Evans' testimony on the Piper Enforcer.

Lt General William J. Evans, Deputy Chief of Staff for Research and Development appeared with Dr. Walter B. LaBerge, Assistant Secretary of the Air Force (Research and Development) before the House of Representatives, Committee on Armed Services, Subcommittee No. 1 (Research and Development) on Friday, April 5, 1974 to discuss various ongoing R&D developments within the USAF. During these hearings, Chairman Price introduced the subject of the Enforcer, an extensively modified P-51 aircraft designed several years ago by Mr. David Lindsay. Mr. Price inquired as to the possibility of the Enforcer's use as a close air support aircraft versus the Air Force's A-10.

General Evans' testimony about the Enforcer represented his honest opinion of that aircraft's ability to perform the close air support mission and reflected the results of past Air Force analyses, flight tests and evaluations made during the last three years.

Because of the potential misunderstandings involving Enforcer capabilities, the Air Force Chief of Staff, General David C. Jones, met with Mr. Lindsay on August 17, 1974 and discussed the Enforcer. At that meeting, General Jones also invited Mr. Lindsay to meet in the near future with Lt General James T. Stewart, Commander, Aeronautical Systems Division, Wright-Patterson AFB, Ohio to conduct a more technical discussion of the Enforcer. Mr. Lindsay will be provided the opportunity to present his appraisal of the potential operational capabilities and flight characteristics of his currently proposed Enforcer as well as a copy of his proposed flight test plan. Subsequent to this meeting General Stewart will conduct a comprehensive review of all available Enforcer information.

With any new data that is made available for this forthcoming review, our future analysis may, of course, differ from past analysis. Following this review, the findings will be reported to the Chief of Staff.

We trust this information responds adequately to your request. We will be pleased to provide the results of General Stewart's review should you desire. Please call if we can provide anything further in this regard.

Sincerely,

RALPH J. MAGLIONE,
Brigadier General, USAF Director,
Legislative Liaison.

Mr. DICKINSON. You discussed some of the technical things that I had in mind, such as—heat suppressors or reflectors for your weapons. You do have space and power to carry ECM-pods, Chaff dispensers, and so forth.

What was the statement you made about the unfortunate experience with the Harrier recently?

Mr. LINDSAY. I was told all funds for the advanced Harrier were eliminated by the Congress in the last 48 hours. I don't know whether that is true or not. I was told that by the people in the Marine Corps. The AV-16 which is distinct from the one they presently have which is the A-8 which has rather limited loiter.

Mr. DICKINSON. The Marines have bought two wings, I think, or squadrons.

Mr. MELVIN PRICE. It could be that the Senate Appropriation Committee may have done something. That would be a matter for Congress to determine.

Mr. DICKINSON. Has something happened to the Harrier? Have they changed?

Mr. LINDSAY. The British who were in the development of the advanced engine for the Harrier that was supposed to be practical pulled out totally leaving the Marines on their own. They said they couldn't fund it unilaterally. The present Harrier is essentially a research vehicle and this committee has so characterized it and so has the Senate. It doesn't have enough range or fuel. The operation in the vertical mode uses up so much fuel it doesn't have much left. They hoped the new one would be better, in the eighties, and apparently now the funds for the later one have been cut, which makes me wonder what they are going to have as a forward deployable airplane in the meantime.

Mr. DICKINSON. You said the Marines were directed to test this as opposed to Air Force or Army, since that is their role anyway in giving close air support. I don't know that I understood the results of it.

Mr. LINDSAY. A small technicality, sir. They were directed to evaluate on paper with computer techniques and engineering analysis. It has never been flown. All that—except in Pave Coin for a few days. All I'm really asking for is to correct the record, and, two, to solicit your support in getting flight tests which will give meaningful data. There is just so far you can go with a computer. The Marines, I am sure, assisted by the Navy, would be happy to take it out to Patuxent River after Lockheed certified it to them in the normal military process and test it and tell us what the infrared signature is. Some of my patents include the introduction of cold air after the burning of the jet fuel, and bring the heat out over the wing so it is screened from the infantry-held missiles below.

But there is no way in God's world to do that with a computer. It has got to be flown.

Mr. DICKINSON. As General Cushman said when interrogated in the House Appropriations Committee: "What kind of tests will they conduct? Is this another paper study?"

General Cushman said, "No, sir. I think they will have to fly it to get all the determinations."

They didn't fly it?

Mr. LINDSAY. No, sir.

Mr. DICKINSON. They have not flown it?

Mr. LINDSAY. The airplane has been in storage in Vero Beach for something over 2 years.

Mr. DICKINSON. I don't want to take too much time. I am very impressed with what you have said and what you have been able to show us.

What is it you want?

Mr. LINDSAY. I would like to have the Lockheed proposal to Naval Air Assistance Command accepted. They were asked to propose a package program which would include standard Milspec-contractor engineering verification with 6th-scaled model wind tunnels and all that, then contract or flight tests for loader, for handling characteristics for weapons separation.

Mr. DICKINSON. This was the \$6.5 million.

Mr. LINDSAY. \$6.1 million. That includes four flying airplanes complete with engines and everything else except for avionics.

Mr. DICKINSON. What is it you want?

Mr. LINDSAY. I would like to get someone to order the Pentagon to go ahead and test it. I think with the amount of money I have seen wasted, and the fact that the Pentagon now admits in a letter from Secretary Clements, he says this is a zero-risk project, why not test it?

That is why I am so frustrated.

Mr. DICKINSON. If you want to prove the point, you still haven't one of the services that will buy it.

Mr. BATTISTA. Mr. Lindsay, I believe there are at least four or five aircraft that were evaluated during the Pave Coin program.

You are asking the committee to provide support in getting your aircraft flight-tested. Why yours and not any one of the others? Was yours clearly the outstanding aircraft among those evaluated in the Pave Coin program?

Mr. LINDSAY. There is no question about it. And I can give you the names of the two pilots that flew the aircraft.

In the first place, only one of the aircraft actually showed up, and that was a Pinto, which is a conversion of a Navy trainer of 15 years ago. It is a very tiny, light aircraft which was not allowed to carry the prescribed ordnance. It is a single engine jet. By the very nature it is not adapted to ground support.

Mr. BATTISTA. Do you believe there is a sole source justification here for flight-testing your aircraft?

Mr. LINDSAY. I certainly do, sir. I came forward at the request of the Deputy Secretary of Defense, and brought something off the shelf. I spent my own money in it. We clearly won Pave Coin, which was open to all the industry that wanted to participate. Most of them didn't want to participate because it wasn't funded.

Mr. DICKINSON. Let me close by saying, I would be willing for whatever good it would do to sign a joint letter similar to the ones that the five Senators wrote. It makes sense to me, and I think it is commonsense.

Thank you, Mr. Chairman.

Mr. MELVIN PRICE. Is the Enforcer prototype flight worthy?

Mr. LINDSAY. The existing prototype is in a runup storage where it comes out once a week, we start the engine-on its own internal battery and taxi it around the field to lubricate the landing structure, and so forth, and put it back in the hangar. Any airplane stored that long might have to have what is called a licensing inspection in FAA terms.

The only other impediment to it is the engine is owned by the Navy and it is on a not-to-be-flown contract, at zero cost. When I was using the engine I was having to pay the full cost of the engine prorated over a 4-year period. That is rather expensive. And unless there is some reason to fly it, we were happy to have the Navy let us store it for

free. But, as Lockheed does propose a couple of modifications in my design, they want to widen the horizontal tail to about 16 feet, so that when it is carrying extremely blunt stores it will be more stable, although it can manage now, and they want to put in a hydraulic aileron boost for greater rate of roll.

Those are the only changes they contemplate. But the airplane could be taken out and go through the normal safety inspections and flown.

Mr. MELVIN PRICE. Is that Lycoming engine that you mentioned still in production?

Mr. LINDSAY. It is not only in production, but that is for the Shah of Iran's Government the improved version of it which includes additional power, some advantages in the burner cans metallurgy, and in the fuel control is currently in production, and the Shah paid the startup cost. That is the core engine.

The gear box which turns the propeller is not currently in production, but there are a couple in existence. It is a routine matter to put it in production.

Mr. MELVIN PRICE. Mr. Ichord.

Mr. ICHORD. Thank you, Mr. Chairman.

I just want to state, Mr. Chairman, that I am in complete agreement with Mr. Dickinson and with Mr. Lindsay, and I think it is long past the time that we give serious attention to a reevaluation and a modification of the roles and mission concept, particularly in the field of close air support.

I have always thought on this—and I am sure Mr. Pike will share this belief—the way you are flying the A-10, or any other plane, that the people in the air should be coordinating and working rather close with the people on the ground. I think that the Army should be either flying this plane or the A-10 in all close-air-support missions, or the Marine Corps, or what have you.

Mr. PIKE. The Marines do it.

Mr. ICHORD. Right, they do it that way, because they don't have that problem.

I think, Mr. Lindsay, you have probably been up against however, more than the roles and missions concept.

You unfortunately had the "No, No" tag of NIH on your product. "Not Invented Here."

Mr. LINDSAY. Yes, sir.

Mr. ICHORD. I have been on this committee long enough to know it is pretty difficult to get anything by, if it has that tag on it.

I would like to ask you this question: You say you have sold the project to Piper, and Piper in turn sold the manufacturing rights to Lockheed.

What financial interest, if any, do you retain in the Enforcer?

Mr. LINDSAY. I am an unpaid consultant to Piper and to Lockheed, and to the Navy, in the 106-millimeter gun test. I received not even my expenses, although it cost me approximately \$130,000 in the last year of carrying out the evaluation, on my part of having to travel and provide the things that were needed by the Navy Systems Command, et cetera, which are all on my own plate.

Mr. ICHORD. Do I understand you to say you have no financial interest?

Mr. LINDSAY. I do have a financial interest in it that Piper paid me a relatively modest down payment, and they were to pay me an additional sum based on the fact, if they sold airplanes. If they don't sell any airplanes, I don't get a thing. But I will receive, I think, a relatively modest payment per airplane if it is sold.

Mr. ICHORD. I think, Mr. Chairman, I would state that I would agree with Mr. Dickinson. I think Mr. Lindsay should have a test. Mr. Battista has prepared a number of questions and has given some to me. I have got to leave now, but I do hope Mr. Battista will get the answers to all of these questions that he has prepared before Mr. Lindsay leaves. I think it is very appropriate that they be in the record.

Mr. MELVIN PRICE. Mr. Spence.

Mr. SPENCE. Mr. Chairman, I don't have any questions.

I want to thank Mr. Lindsay for his presentation. I want to apologize for having to run back and forth answering quorums. I think you made a very good case for your airplane.

I would like to join Mr. Dickinson and Mr. Ichord in calling for a test.

Mr. LINDSAY. I deeply appreciate that, gentlemen. I think the test will prove it has high utility and I think probably if looked at fairly and impartially will verify what Mr. Ichord said, that really this probably should be a plane based with the Army. The Army has a concept of refuel-rearm, where they intend, knowing there is going to be a confused battle with chaff all over the air and countermeasures and great confusion, centralized computers will just not work in a true air war. It might work in Vietnam where we had complete air superiority. But their concept is to have the fuel, the ammunition, trucked or helicoptered in, during the night, and you take off in the morning in your airplane and you go find the war and you fight it. You support your troops. Then you turn on a coded locator and go back and find where they have moved that base during the day to some other farmer's field or some other road.

We could operate with them. It wouldn't matter whether it was an Air Force pilot flying it, Marine Corps pilot, or a man in an Army suit. But it should work in close collaboration with the Army and it is capable of doing that.

Since they, after all, are the recipient service in close-air support, I honestly hope that some consideration will be given to a concept such as this.

Mr. MELVIN PRICE. Mr. Hicks.

Mr. HICKS. Thank you, Mr. Chairman.

I don't understand all this that my learned colleagues understand, since they have been flying airplanes, but I was impressed by what was done here, and I join Mr. Ichord in asking that these questions be answered.

You spoke about the 106 millimeter recoilless rifle when you were giving Mr. Pike your mix of loads. Did you always have this recoilless rifle?

Mr. LINDSAY. No, sir; the recoilless rifle is—the firing of it was at my suggestion, and the firing was the first in history, but we have to recognize that it is in its infancy. It is something that has never been done before. It requires a great deal of flight-testing. It has had its ground testing and theoretical testing and I, therefore, would not

claim it as a perfected weapon. I would rather say the ones we know we can operate against tanks with in a standoff basis are the Maverick and others.

Mr. HICKS. You can't do that at \$70 a round, though.

Mr. LINDSAY. I feel definitely and strongly it should be pursued, the Maverick costs approximately \$13,000 a round, and it is a single shot. The 106 millimeter, \$70 a round, it is a single shot. I would think it would be in the country's interest to pursue the testing. I would like to incorporate that testing into the Enforcer testing that I am proposing, because clearly the Enforcer is the natural plane to use it, since it can land with the Army, it could pick up 106 millimeter rounds, it could pick up 50 caliber rounds, and could pick up fuel with any Army detachment it might be able to land in.

Mr. HICKS. When you were giving load amounts, did you include in that the 50 caliber rounds? You have to trade off, you can't carry as many Mavericks?

Mr. LINDSAY. The 50 caliber rounds weigh 630 pounds for 2,000 of them. I can't visualize a single mission in which you wouldn't carry those with you.

My understanding of the way that D.D.R. & E. has broken out these figures which have supplemented my original ones is that they consider that internal munitions and the figures that they are using are external ordnance—under-wing ordnance.

Mr. HICKS. I have no further questions. Thank you very much.

Mr. MELVIN PRICE. Mr. Lindsay, have you had any recent contact with anyone in the Air Force?

Mr. LINDSAY. Yes, sir. I called on the former Chief of the Air Force, who is now the Chairman of the Joint Chiefs, on Friday the 19th to present a very similar letter analysis to that given you. In fact, it was his chief aide's and exec's suggestion it was actually dictated to his secretary. They stayed there until 8:30 that night and got out the whole package. But nothing that they have done about it has come to my attention. So I called General Brown's office the night before last and said "I am scheduled to appear before Mr. Price's committee. What do you want me to do? I don't want you to think I am double-crossing you."

He said, "We passed it to the Air Force. They had their chance—move out."

So that is why I am here.

Mr. MELVIN PRICE. Have you had any followup since your visit with General Brown?

Mr. LINDSAY. No; I have not with the Air Force. I had a 2-hour session yesterday at DDR&E with a gentleman who is the head of land warfare. He had the A-10 project officer from his office there. They were both quite interested and helpful.

Mr. MELVIN PRICE. Perhaps you have not received it, but the chief of staff of the Air Force, General Jones, has addressed a letter to you suggesting that you contact the executive officer, Colonel Gray—you might want to do that while you are in town—at 697-9225, to arrange a mutually convenient time when you can sit down and discuss this matter with him.

Mr. LINDSAY. I am delighted to hear that, sir. I would like nothing better than to sit down with General Jones, of whom I have heard nothing but the best reports.

Mr. MELVIN PRICE. General Jones will advise you that he welcomes a visit with you to discuss the general aspects of the proposal.

Mr. LINDSAY. I hope something comes of that in the way of a flight test, sir. I hate to seem persistent, but I think we have studied and analyzed, all we can. We now have to get the airplane in the air, as General Brown said in that very fine comment about the "real world."

But I shall certainly make that contact.

Mr. MELVIN PRICE. You probably have this letter at your office in Florida. They directed it to you, it's dated August 5.

Mr. LINDSAY. It was not there at 12:30 today when I spoke with my office. I asked if there was any important mail at all, and I was told "nothing."

Mr. MELVIN PRICE. Mr. Aspin, would you have any questions?

Mr. ASPIN. Maybe just one question, of Mr. Lindsay.

Is this in your view—to what extent is this a competitor to the A-10, in your view? I mean in some sense you know, you talk about General Evans misrepresenting the differences, or in what sense is it in your view a complement to the Force?

Mr. LINDSAY. I think they are more complementary than competitive. The A-10 is not clear to land on unimproved fields. We are. We are a small plane flying at helicopter speeds. We are inexpensive planes, when the loss is taken, losses will not break the Treasury. Losses will be taken. We will have to admit the environment will be quite lethal.

The A-10 I am sure has uses I don't understand. I don't think it can do the things we can do, and I am sure it can do some things that we can't.

Mr. ASPIN. What you would be really opting for is a mix, a high-low mix, some kind of a force consideration in which we would buy maybe not as many A-10's as we might have—and some Enforcers?

Mr. LINDSAY. I think that is a very valid proposition. Apparently it is achieving acceptance in the Lightweight Fighter versus the very expensive F-15. To me it is a correct analysis.

Mr. ASPIN. Thank you, Mr. Chairman.

Mr. MELVIN PRICE. Mr. Lindsay, we have another recorded vote. I don't think any of the members will want to return:

However, I am going to ask Mr. Battista to remain and get for the record some answers to questions that the committee would like to put to you.

Mr. LINDSAY. Mr. Price, I would be delighted to stay and, I deeply appreciate this interest shown by the committee and particularly yourself.

Thank you, sir.

Mr. BATTISTA. I would like to explore one other application and that is for the Marine Corps in terms of their close-air support mission and amphibious operations.

The Enforcer is not shipboard capable today. Do you see that as a major problem?

Mr. LINDSAY. It would be a very minor problem. I learned through the President of the Society of Experimental Test Pilots, Mr. Robert Elder, former Navy captain and presently with Northrop, prior to the invasion of Japan he conducted a complete carrier qualification of the ancestor of the Enforcer, the P-51 Mustang, and it was fully

qualified, clear-deck and catapult for carriers. He added a 23-pound tail hook to the aircraft and told me it was one of the sweetest airplanes he had ever taken aboard a ship.

I asked him what he thought of the Enforcer, and he said:

You are going to have a much stronger landing gear in your production version. You have a great deal more power. You should be able to get off shorter. You are much more rugged.

There should be no reason in the world you couldn't almost consider it qualified the minute you put a landing hook on it.

And we have designed the aft section and it accepts the tail hook.

If it weren't for the carrier aspect, I think we would add the tail hook for recovery of badly shotup aircraft, as they use cables and weights to slow them down when they come in with quite a bit of the controls shot away.

I feel there is no question about its carrier-compatability and that it could fly into the Marine beachheads and land on their unimproved surfaces carrying out their primary role.

I must say, when I first talked to General Cushman, I told him we were not trying to sell the plane to the Marines, we were trying to get a test because of the vast overseas market we had determined. But the more I study it the more I feel it is appropriate for the Marines, and at that time I did not know of Captain Elders' testing.

Mr. BATTISTA. Extending Mr. Aspin's remarks: You are not really advocating the Enforcer as a competitor to the A-10, rather as a supplement to the A-10, or other close-air support applications in the European problem?

Mr. LINDSAY. Correct. I think there would be many places where we would be reluctant to take in aircraft of that expense and complexity where the support equivalent might not be available where you might need something much simpler, much more field repairable.

I think it would supplement the A-10 in that regard.

In the offshore market military assistance sales, military assistance aid, the A-10 price tag almost rules it out of that except for such lucky countries as Iran.

I believe there would be a great potentiality for this airplane offshore, which will also help our relationship of balance of income-and-outgo of foreign exchange.

Mr. BATTISTA. With regard to the use of this plane in the close-air support role, you have got a prop out there which will enhance your radar cross-sectional area. They have done some recent studies on the effectivenss of the QUAD-23 Gun to effectively engage targets that are flying nap of the earth.

Do you feel this would be a major drawback in the close-air support?

Mr. LINDSAY. I talked to some Air Force Officers who have gone into that very much, and they feel in an area where you are likely to encounter the QUAD-23 there is going to be so much chaff and other activity in the air that that slight difference in radar profile would not be important, particularly since we would be working nap of the earth principally.

If we were coming in on a bomber run, in a formation of bombers at 30,000 feet, it would be, I think, quite a different thing. But I don't think in the kind of tactics which I suggested for this airplane it is important.

Mr. BATTISTA. I would like to turn to costs.

Is the \$761,000 estimate the flyaway cost, what essentially does that represent? Is that airframe plus engine, or does that include some level of avionics?

What basically is that 761K covering?

Mr. LINDSAY. That is the complete airplane, plus the R. & D. back of it. The whole package with the exception of the avionics. The NAVAIR estimate of \$1.1 million included items that Lockheed showed as GFE.

Now, it would include avionics sufficient to fly the aircraft on instruments to a target in an area, but quite frankly, the avionics picture changes almost daily as you know, and we have been waiting more or less 3 years now. We felt it was foolish to seek to include the avionics. That would probably be determined by the type of mission.

It was suggested to me yesterday by the head of land warfare in D.D.R. & E. that this aircraft might be an excellent forward air control aircraft in a highly lethal area.

I am sure in that condition the avionics package would be quite different from the avionics package that might be used say in just the close support, or it could be used for radio relay, since it is so economical as to fuel it could be used as we had it rigged during the Pave Coin Test to operate a radio relay flying around at 30,000 feet and relaying up a ground VHF message and kicking it back out on UHF or HF.

These are some of the many uses that would apply. In each case the avionics can be accommodated but they would be different in almost every case.

Mr. BATTISTA. The \$761,000 estimate again, in what year-dollars is that?

Mr. LINDSAY. That estimate, that price was made approximately 6 months ago, and therefore I would have to say it is 1973—end of 1973, early 1974 dollars. We have been assuming an inflation factor of approximately 7 percent, which I believe is the accepted military figure at the moment.

Mr. BATTISTA. It varies.

Mr. LINDSAY. That is one I would hate to put any money on.

Mr. BATTISTA. Depending on how hard you want to sell your program, it varies.

Mr. LINDSAY. True.

Mr. BATTISTA. Now, I do have an extensive list of questions here. Rather than taking up the remainder of the afternoon, I will give you these questions and you can provide the answers for the record. I think that would save a little time.

Mr. LINDSAY. Whatever your preference is.

Mr. BATTISTA. I will do that.

The subcommittee will adjourn subject to the call of the Chair.

[Whereupon, at 4:40 p.m., the subcommittee adjourned subject to the call of the Chair.]

[Following are the answers for the record to the specified questions submitted to Mr. Lindsay:]

Question No. 1. The Air Force tested the Enforcer along with the Aeronca-Super Pinto, the Cessna A-37B and two versions of the OV-10 in the Pave Coin program. To your knowledge, did the Air Force consider the Enforcer to be the superior aircraft of the five tested?

Answer No. 1. As only the Enforcer flew the full flight test program of Pave Coin, both by day and by night, with zero maintenance while in Air Force custody, and with excellent accuracy with the varied missions specified, it would seem clear that the Enforcer would have to be considered the superior aircraft.

Both pilots who flew the test program have confirmed to Enforcer project personnel and to DOD officials their strong preference of the Enforcer for the close air support role.

Question No. 2. On page 7 of your prepared statement, you make reference to what you term is an obsolete agreement of 1957 which bars the Army from using fixed wing attack prop jets.

(A) Why do you believe the agreement to be obsolete?

Answer No. 2(A). An agreement made in 1957 could not take into account the changes in tactics made necessary by the current world-wide military situation, including the development of highly lethal, radar-directed antiaircraft weapons and heat-seeking missiles. Also, the existing and potential fuel shortage makes a restudy of fuel requirements necessary. Also, the high level of inflation makes obsolete any previous budgetary considerations which might have anticipated the use of larger quantities of what have become extremely expensive aircraft.

(B) What potential use could the Army make of the Enforcer?

Answer No. 2(B). The Army, if uninhibited in its answers by inter-Service agreements, could of course best speak to how it could best make use of the Enforcer. I myself feel that it would be an excellent supplement to fill the gap between the armed helicopter and the Air Force's pure jet attack aircraft. The Enforcer's heavy armor and ability to utilize a wide variety of potent ordnance would permit it to operate in many areas of lethality which would be beyond the reasonable limits of armed helicopters.

The new Brookings Institution study, "U.S. Force Structure in NATO—An Alternative," stresses that the Warsaw Pact countries have a 3 to 1 edge in tanks and a 2 to 1 edge in aircraft over NATO, and that if a quick tank thrust were made, NATO forces would require immediately a large number of aircraft for close air support of ground forces. They could not afford to wait for close support until air superiority has been achieved.

As the Enforcer is ideally suited to the mission of being deployed on widespread fields, in close contact with the Army, (whether flown by Air Force, Army, or Marine, or Allied pilots) it could be available for immediate assistance in breaking up tank concentrations, and also, it would be able to defend itself with its internal machine guns or Sidewinder-type missiles against attack from hostile aircraft, through use of its extremely tight turning radius and evasive potential.

(C) How would the Enforcer enhance the Army's operational capability?

Answer No. 2(C). In my opinion, the Enforcer's augmentation of Army direct fire support through the use of Maverick missiles, Rockeye, and a wide variety of ordnance beyond the capabilities of attack helicopters, could be crucial.

Question No. 3. The Air Force described many deficiencies in the Enforcer as a result of the PAVE COIN program. Can you state whether the following problems still exist or have been corrected.

(A) The cockpit design would only accommodate large pilots.

Answer No. 3(A). The cockpit seat and other equipment are capable of being mounted in varying positions to accommodate the size percentile pilots who would be anticipated. It should be pointed out that the Cavalier Mustang, furnished by the Air Force to Bolivia and to Indonesia, has a similarly proportioned cockpit, and is being flown successfully by pilots of these countries, who tend to be smaller in size than pilots of many other countries.

(B) The roll response was inadequate.

Answer No. 3(B). Roll response has been increased to meet full military specifications of this type aircraft by the addition of a hydraulic aileron boost. The aircraft can be flown quite adequately in the event of loss of this supplemental hydraulic system.

(C) It had unacceptable maneuvering performance requiring abnormal pilot inputs (i.e., stick force reversals at moderate "G" during pull outs).

Answer No. 3(C). Maneuvering performance when carrying large ordnance loads has been improved to meet requirements by increasing the span of the horizontal stabilizer from 13 ft. 2 in. to 16 ft. 9 in. This modification will move the stick fixed neutral point aft to 34.2% MAC from 25.6% MAC without external stores. The allowable Center of Gravity travel has been substantially increased.

(D) Poor visibility over the nose needed for the delivery of high drag, close air support munitions.

Answer No. 3(D). Visibility directly over the nose is inherently limited by the forward engine mount design, but it is only necessary to look slightly to the right or left of the engine cowl to have excellent visibility downward. The ability to deliver "lay-down" high-drag, close support munitions was successfully demonstrated in Pave Coin, when cluster bomb units and napalm canisters all scored hits within the assigned target area during actual day and night tests.

(E) Unsatisfactory cockpit cooling.

Answer No. 3(E). Cooling in the cockpit has been improved to desired limits by modification to the Hamilton Standard 3-spool turbine airconditioner, by the addition of bleed air, and by enlarging the fan capacity to move air.

Question No. 4. The maximum ordnance load for the Enforcer is listed at 5,480 pounds. Does this include the 50 caliber ammunition?

Answer No. 4. It does.

Question No. 5. How can an Enforcer with six rounds of 106 mm. compare in effectiveness to the A-10 which carries 1,350 armor killing rounds of 30 mm. in addition to 16,000 pounds of external ordnance?

Answer No. 5. Probably the only way to accurately answer this question is to carry out flight tests against actual armored targets. The 106 mm. recoilless rifle is the standard anti-tank weapon of much of NATO, and there is no question that it can destroy any tank known.

It has been successfully demonstrated mounted on the wing-tips of an aircraft corresponding in design geometry to the Enforcer, although these tests are still in relatively early stages.

At this date, the GAU-8/A 30 mm. gun has not been cleared by the Defense Systems Acquisition Review Council, as to full compatibility with the A-10, and as to ability to penetrate Russian tank frontal armor under simulated operational conditions.

As to the 16,000 lb. of external ordnance, there is no claim that the Enforcer can carry this amount on plane-for-plane basis, although it can do so on a dollar-for-dollar basis.

Question No. 6.

(A) Do you envision using the Maverick missile?

Answer No. 6(A). Yes.

(B) If so, can the cockpit accommodate the TV display?

Answer No. 6(B). Yes.

(C) How many missiles could the aircraft carry?

Answer No. 6(C). Six.

(D) Is this a part of the development program?

Answer No. 6(D). Yes.

(E) How much delta cost is involved?

Answer No. 6(E). Delta cost will depend upon DOD requirements. Preliminary investigations disclose no areas of serious problem or high cost or risk.

Question No. 7.

(A) Concerning the use of six 106 mm. recoilless rifles (3 on each wingtip) on the Enforcer, how much would such a system weigh?

Answer No. 7(A). Use of clusters of three 106 mm. recoilless rifles on each wingtip is not presently under test. However, it appears to be a feasible operation. Dr. C. Walton Musser, inventor of the presently-used ground recoilless rifles estimates that weapons designed especially for aircraft, rather than for the rugged ground environment would weigh approximately 20% less than the standard units. This would put each cluster in a weight category of approximately 600 lb. (1,200 lb. for the two clusters).

(B) What impact or weight penalty would this have on overall ordnance carrying capacity?

Answer No. 7(B). The installation contemplated can be used attached outboard of the Enforcer wingtip tanks, or, with identical fittings, can be attached directly to the wingtips after the tanks are removed. If the tanks were removed, there would be no reduction of overall ordnance carrying capability, as the filled tanks weigh approximately 900 lb. each. If the clusters were mounted outboard of the tanks, carriage of other ordnance on the 10 wing stations would have to be reduced by the weight of the clusters, i.e., 1,200 lb.

(C) How will this affect roll maneuvering performance?

Answer No. 7(C). If mounted directly to the wingtips, there would be no reduction of roll maneuvering performance. If mounted outboard of the wingtip tanks, there would be some degree of reduction of roll maneuvering performance, which would be one of the items to be determined by flight tests.

Question No. 8. The Army gives the 106 mm. recoilless rifle a maximum effective range of 3,600 ft., whereas the 30 mm. close air support cannon is effective at ranges of 6,000 ft. Does this mean the Enforcer will need to fly in closer to the armored threat to use the 106?

Answer No. 8. Dr. C. Walton Musser, points out that the Army's comments on effective range of 3,600 ft. is not a limitation of the weapon itself, which has a maximum range of 25,200 ft. when fired from a ground mount, (this would be greater when fired from an aircraft in a dive). The Army's mention of 3,600 ft. as effective range was based on (1) The fact that the weapon was designed to be fired by the infantry using a caliber 50 spotting rifle, which has substantially less range than the 106 mm. and (2) Records of thousands of encounters of this weapon on ground mounts with armor have indicated that there are usually limitations of the ability to see the tank or the target, due to intervening trees or terrain. This would not be applicable to the same extent when firing from an aircraft.

The 106 mm. has demonstrated hits from 6,000 ft. slant range when fired from a Cavalier Mustang aircraft. Dr. Musser and I have recommended that flight tests will probably indicate optimized harmonizing distances of the gun and the sight of the weapon at 2,000 meters slant range.

When Army uses the telescope sight M92D, maximum direct fire range is specified as 6,600 ft. (2012 meters). *Reference Army Field Manual FM23-82, May 1964.

Question No. 9.

(A) Do you envision any changes to increase survivability (aircraft hardness) of the Enforcer, particularly against the 23 mm. threat? If so, what?

Answer No. 9(A). The composite ceramic/fiber armor weight allowance of the Enforcer has been increased from 1,100 lb. to 1,500 lb. to permit armoring of the pilot and certain critical areas against the 23 mm. threat.

(B) What development efforts are necessary and what are the associated R & D and production costs?

Answer No. 9(B). Tests of this armor against the 23 mm. threat have already been carried out by the manufacturer and by official government testing agencies, and therefore R & D expenses are expected to be minimized. As the armor will be added at the center of gravity of the aircraft, there are no significant design change to the aircraft. Production costs will be essentially limited to the cost of the additional square feet of armor purchased, and this price, of course, will be dependent upon production quantities. As related to the overall cost of the aircraft, the small additional cost of the armor is relatively insignificant.

Question No. 10.

(A) Do you envision the aircraft carrying an ECM pod, flare and chaff dispensers and radar warning equipment?

Answer No. 10(A). Yes. All of the listed equipment will be carried as the varying combat situations may require.

(B) If so, what development/integration effort is necessary?

Answer No. 10(B). Development and integration effort will, of course, depend on specific equipment selected by the users. The simple design of the Enforcer, with a relatively large amount of empty fuselage space made possible by the fact that no fuel is carried in the fuselage should make integration relatively simple.

(C) What R & D and production costs are involved?

Answer No. 10(C). These items will be dependent upon specific equipment selected by the user. The Enforcer's design makes it easily adaptable to the use of any pods in its weight category.

Question No. 11. You refer to the T55-L-9 engine as a variant of the engine tested in the CH-47 Chinook helicopter.

(A) How different is this variant?

Answer No. 11(A). The basic jet turbine engine is essentially identical, but a propeller gear box is added to the basic engine for fixed-wing aircraft use.

(B) Is this engine still in production?

Answer No. 11(B). The basic engine is presently in production, under a contract with Iran for in excess of 300 units. The engine is also still in the inventory and in use in the CH-47 helicopters.

(C) If not, what would be the "start up" costs of producing that engine?

Answer No. 11(C). Re-start-up costs were paid by Iran.

(D) Does any engine development effort remain?

Answer No. 11(D). The propeller reduction gear box is presently operating under a 50-hour Military Preliminary Flight Rating Test. It is contemplated that other engines in the 4-plane flight test program being sought would operate under the same authority. For production engines, a Military Qualification Test would probably be required.

(E) If so, at what cost?

Answer No. 11(E). For the flight test engines, there would be no more development costs, but for production aircraft, built from new tooling in quantity, the Military Qualification Test is estimated to cost approximately \$3 million.

(F) Would this be a pacing item from a schedule point of view?

Answer No. 11(F). The engine would be the pacing item for the 4-plane flight test program proposed. The production tooling of the aircraft would be the pacing item for production in quantity.

Question No. 12.

(A) What type of full-scale engineering development program is necessary to fully qualify the Enforcer for combat operations?

(B) What engineering design effort has been conducted to identify the production configuration of the Enforcer?

(C) What type of engineering changes are necessary to transition from the prototype to production model?

(D) What static and fatigue testing have been accomplished and what is planned for the development program?

(E) Has the development/test program been laid out for the Enforcer?

(F) How long will the Enforcer development take and how much will it cost?

(G) How much wind tunnel testing is necessary?

(H) How many flight test and fatigue and static articles are required for the development effort?

Answer No. 12.—All of the information requested in Questions (A) through (H) was originally put forth in Lockheed-Georgia Proposals (Five volumes—Coded LG73ETP237) furnished to Naval Air Systems Command in response to their request for proposal. This information is available in the Pentagon through the office of the Director of Defense Research and Engineering. The Project Officer for the Enforcer in this office who can assist in obtaining the desired data is Capt. M. W. Townsend, Telephone 695-3015.

As the original proposals were adjusted and modified in several months of discussion among Lockheed, NASC, Marines, JCTG/Air Survivability, etc., and the final results have not been made available in their entirety to me or to Lockheed, I believe using DDR&E as the source would be more accurate and convenient.

Question No. 13.—How does the Enforcer with a full ordnance mix compare with the A-10 in terms of: (1) Take-off distance; (2) Speed; (3) Rate of climb; (4) Range; and (5) Loiter time?

Answer No. 13.—The A-10 data necessary to answer this series of questions is not available to Enforcer project personnel, but can be provided by the Pentagon's Office of Defense Research and Engineering. As explained in Question 12, DOD verified Enforcer data is collated at DDR&E.



DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1975

HEARINGS BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES NINETY-THIRD CONGRESS SECOND SESSION

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PART 8

**Testimony of Admiral Hyman G. Rickover
Testimony of Members of Congress and Other Individuals
and Organizations**

Printed for the use of the Committee on Appropriations



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Secretary SCHLESINGER. Mr. Chairman, we adjust the TOA to conform with whatever outlay limit the OMB or the President permits. If there had not been this perception of an easing economic environment I believe our outlays might have been a billion or a billion and a half dollars less in 1975. That, I think, is the extent of it. The growth in the TOA request of course reflects what I have indicated, the fact that we were prepared to go in for a request on the order of \$85 billion in outlays.

* * * * *

Ms. ABZUG. Secretary Schlesinger is in fact admitting an increase of \$6.3 billion. The fiscal year 1975 request for TOA (total obligational authority) is \$91.3 billion. This corresponds to the appropriations (budget authority) request of \$91 billion.

THURSDAY, MAY 30, 1974.

ENFORCER AIRCRAFT

WITNESS

DAVID B. LINDSAY, JR.

Mr. SIKES. The next witness will be Mr. David Lindsay who speaks for the Enforcer aircraft.

Mr. LINDSAY. Mr. Chairman, this is the first time that I or anyone else representing me has ever discussed the Enforcer in a public forum. I think it is somewhat unique and I have tried to hold my remarks to a rather short statement, nine pages, double-spaced.

Mr. SIKES. You may proceed.

Mr. LINDSAY. There will be other witnesses on my behalf.

STATEMENT OF MR. DAVID B. LINDSAY, JR.

Mr. Chairman, members of the committee, I appreciate this opportunity today to give you certain facts about a privately designed and produced weapons system, and its advantages and potential for Close Air Support, which I feel relates critically to the Nation's defense.

I should make it clear I am expressing opinions of my own, not those of any of the defense-oriented companies which have invested their funds, in addition to my own not inconsiderable outlay, in development of the Enforcer and its related systems. This story is unique; the Enforcer represents—for the first time in the history of the Defense Department—a complete aircraft weapons system designed, built, and tested without any Government funding whatsoever.

The Enforcer is a one-man high, one-man wide, single engine, conventional gear, low-wing aircraft, made entirely of standard aircraft aluminum and the world's most effective composite armor. It has 10 underwing weapons stations and six internal 50-caliber machine guns and is essentially a platform to deliver ordnance. Senator Thomas McIntyre has called it "a flying arsenal." Its unrefueled range or loiter is greater than that of any comparable aircraft. Its speed range is 80 to more than 400 knots (which makes it, incidentally, capable of both faster and slower speeds than the Air Force's proposed close support aircraft, the A-10).

Some of you may wonder why an artillery officer of World War II, a newspaper publisher for the past quarter century, is here discussing a close-support aircraft weapons system.

To explain as briefly as possible, I have been a pilot since 1941. In 1957 I purchased the first of a number of F-51D Mustangs which had remained in service from World War II until that year. The Mustang—our best air superiority fighter of the Second World War—has impressed all who flew it with its remarkable range and overall performance, and how forgiving it is to pilots with limited experience.

Two years later my company, Cavalier Aircraft, began rebuilding and improving Mustangs—for the civilian market. I bought additional aircraft and parts as they became available in the United States, Canada, Australia, Italy, and in other countries. Cavalier eventually became so well known through its development of new ideas and modifications to Mustangs that the original designer, North American Aviation, which had built 15,000 of the aircraft, purchased one from Cavalier for test pilot Bob Hoover's famous aerial demonstrations.

Mr. SIKES. How many Mustangs did your company rebuild and resell in the civilian market?

Mr. LINDSAY. The total we produced in the civilian market would be somewhere in the range of 30 to 35 and some of them were completely built from the ground up; some were modifications.

Mr. SIKES. What use has been made of most of those aircraft?

Mr. LINDSAY. I designed a second seat for the Mustang and equipped it with normal executive aircraft-type avionics and seats and other comforts and it was really bought by people who had a taste for jet speeds and a beer pocketbook. I would say most of them were people who had some spirit of adventure and liked to go a long way in a hurry at a speed they could afford.

LIMITATIONS OF JET AIRCRAFT

Though this is the jet age, the Air Force, and we at Cavalier, soon learned that many countries were unable to achieve effective military operations using only jet aircraft.

Pure jets had, and still have, certain disadvantages which make them inherently less than ideally suited for close-air-support work. Not the least of these is a high rate of fuel consumption at low altitude and at reduced speeds necessary for precise delivery of ordnance very close to our own troops. Another is an excessively large turn radius. Another is slow acceleration. Also, with their characteristically small nose wheel, they are unable to operate from unpaved, rocky, or muddy fields. They have difficulty conducting sustained maneuvers or searches at low altitude in difficult, mountainous terrain, or under low ceilings.

Many friendly foreign countries, particularly in South America and Asia, have a very limited number of paved, jet-capable fields, and vast areas to be kept under surveillance; their only feasible operational technique is for their aircraft to land, refuel, and rearm on a pasture, road, or clearing.

Recognizing this, the Air Force requested Cavalier to build a number of advanced F-51's, known as Cavalier Mustangs, for the military assistance program. A classic example is Indonesia, a nation of some 3,000 islands, spanning 3,000 miles of the Pacific, which today is still operating Cavalier Mustangs recently supplied by the U.S. Air Force—although it possesses Russian, American, and Australian pure jets, which are unable to perform many of the Mustangs' missions.

Mr. SIKES. When were these Mustangs made available to Indonesia?

Mr. LINDSAY. They were made available to Indonesia in a time span ending approximately a year ago and extending 2 years prior to that.

Mr. SIKES. How many were there?

Mr. LINDSAY. Six aircraft were shipped over and then my company sent a contingent of people to Indonesia at their request to rebuild their aircraft in-country. It was a very high-priority program at the time and the aircraft were actually air shipped in large turboprop transport aircraft.

GENESIS OF ENFORCER

Cavalier never achieved profitability under these military contracts but the experience proved invaluable. U.S. and foreign pilots sent to Cavalier were recently experienced in combat. Their advice and realistic concept of the requirements for an ideal close air support machine convinced me I could build a superior state-of-the-art weapons system for close air support, utilizing a number of my own patents for simplified aircraft construction and weapons systems.

In speaking of close air support I am not discussing interdiction, deep strike, or long-range bombing missions. I am speaking of close air support as defined by the Joint Chiefs of Staff Dictionary as follows: "Air attacks against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces."

In the early seventies Deputy Secretary of Defense David Packard, in a widely applauded move, challenged private companies to initiate prototype efforts at their own expense; this encouraged me in my efforts to provide an alternative. I had the feeling that the aircraft I was talking about was about as practical as a jeep and perhaps to make an analogy we could build jeeps out of titanium; they wouldn't be any better and might be worse because it is hard to field-weld a piece of titanium. They would, of course, cost more.

Most combat officers whose ideas I sought agreed the jet-prop, or turboprop as it's also called, is the ideal propulsion system for close air support.

FIRST PROTOTYPE

I built my first prototype around a Rolls-Royce Dart commercial turboprop engine, and though we were able to prove the soundness of the concept with experimental flying, actual weapons delivery, et cetera, the engine was both too large and too lightly stressed for combat maneuvers.

That necessitated a careful search for a perfectly suited engine. I finally decided on the Lycoming T-55-L-9, a variant of the basic engine used today in all Army and Marine CH-47 Chinook helicopters. The difference between the helicopter engine and ours is merely that the helicopter engine drives a gear train for the rotor-propeller above while ours turns a gear box for a forward propeller.

After a nationwide investigation, I located a T-55-L-9 lying unused at Wright-Patterson Air Force Base. It was not airworthy, and was stored in an abandoned wind tunnel. After 8 months of legal effort, I managed to negotiate a lease with the U.S. Air Force on this engine, prorated on its full new acquisition cost to the Government. Lycoming,

the engine's manufacturer, demonstrated its faith in the Enforcer program by overhauling it to airworthy condition at its own expense, and by assigning technical representatives to work with me without charge.

Around this engine I designed a new aircraft and built a flying prototype, retaining, of course, proven features of the F-51, utilizing components from other aircraft, new avionics systems, and a major portion of newly manufactured parts based on my own design patents. The first prototype, for reasons of economy, was therefore a composite. Production aircraft, would, of course, be of completely new manufacture.

PIPER AND PAVE COIN

Realizing my role as designer, inventor, test pilot, and prototype builder didn't extend into the high-cost and labor-intensive field of large-scale manufacturing, in 1970 I sold the new Enforcer project to Piper Aircraft Co. for a modest downpayment, and additional funds to come from aircraft produced and sold in the future.

While still in the process of moving parts from Cavalier to Piper, we received a request from the Air Force to participate in a completely unfunded project called Pave Coin. The purpose was to select a close air support aircraft for the Vietnamization program and to replace the A-1 Skyraider, whose numbers were rapidly being reduced by attrition.

In reliance on the clearly stated intent of the Air Force to select and procure aircraft in at least the minimum quantities set forth in the "Request for Proposal," we immediately accelerated to a 7-day overtime schedule, using all in-house and consulting engineering talent available. Piper spent well over \$1 million to prepare hundreds of drawings, hundreds of pages of specifications and to flight-qualify the Enforcer for the various weapons and munitions specified for Pave Coin.

In August 1971, the Enforcer was flown at Piper's expense to Eglin Air Force Base. For all the time it was in Air Force custody, it performed all flight and weapons tests, by day and at night, with outstanding operational results and a remarkable record of zero maintenance.

As no other competing aircraft actually flew the test missions successfully, we fully expected an order for the minimum requested quote of 400 aircraft, at Piper's offered flyaway price of \$0.61 million each. No selection or purchase of anyone's aircraft ever resulted from this operation, however. All of the companies participating simply lost their investment.

FURTHER IMPROVEMENTS

Despite the disappointments of Pave Coin, we remained convinced the critical need for a specialized close support, forward deployable aircraft, remained acute. We, therefore, continued to improve the Enforcer's performance, weapons capability, armor, and survivability—to cope with the increasing lethality of the close air support environment, brought about by striking advances in Russian radar-directed automatic weapons and heat-seeking missiles.

The most recently added innovation is being successfully tested by the Marine Corps at China Lake this week. It utilizes my concept and

patents for mounting the 106 mm recoilless cannon, standard weapon of the Army and Marine Corps infantry against tanks, on the Enforcer's wing tips.

With the backing of the Naval Office of Research, Development, Test, and Evaluation, and support and supplies from the Army, firing of the 106 mm was completed earlier this year—history's first successful firing of a recoilless cannon from an aircraft. The cost of a 106 round, incidentally, is only about \$70—and there's no question about its ability to kill any tank.

106 MM RECOILLESS CANNON

Mr. SIKES. I am interested in your discussion of the firing of the 106 mm recoilless cannon. How is this weapon mounted on the wing tips?

Mr. LINDSAY. It is mounted directly to the spars of the wing. This is a rigid-wing aircraft and the Army had two planes I designed for them which they made available for the test. My patent encompasses a rigid-wing which won't flex in turbulence and in extending it you can point the gun at the tip of the spars or mount a wingtip tank spar through the tank and mount the gun outboard.

Mr. SIKES. Why on the wing tips rather than close in on either side of the fuselage?

Mr. LINDSAY. There is a blast pattern, sir, that comes from the recoilless cannon. That is the way that it is recoilless. It is the effect of inertia, and the plutonium principle and the blast factor has been destructive to other aircraft on which it was tried. I concluded if it was mounted that far out it would clear the tail empennage and the Marine Corps tests have proved that to be true.

Mr. SIKES. What is the rate of fire?

Mr. LINDSAY. It is a single shot weapon but it is a weapon which will undoubtedly kill any tank and I might point out any of the \$22,000 to \$100,000 guided missiles are one-shot. We do contemplate carrying programs up to three on each wingtip but our concept of having an inexpensive airplane would mean if you needed more rounds you would put out more airplanes and perhaps to use a term I think I heard you use, confound and confuse the enemy by coming in from different directions.

Mr. SIKES. Why would you not use missiles rather than the recoilless cannon if it is a single-shot capability?

Mr. LINDSAY. Because of the economy. The cost of a recoilless cannon round is about \$70 or \$75. The cost at present of a Maverick missile, for which the Enforcer is qualified, by the way, is approximately, I believe, \$22,000 at its lowest price. There may be a lower price, but I heard of nothing lower. Some of the missiles are \$100,000 a copy. We figure if you can kill a tank for \$75 and if you can land in a field and pick up extra rounds from the Army, it is a pretty darned good idea.

Mr. SIKES. What other weapons would the Enforcer normally carry?

Mr. LINDSAY. Well, the Enforcer has been through a steady test at the Weapons Center at Eglin Air Force Base and we have been cleared across the board for all weapons in the inventory, nonnuclear inventory, in our weight category, which means the 1,000-pound nominal weight category maximum.

Mr. SIKES. What is the largest number of 106 mm firings that has been conducted from any one aircraft?

Mr. LINDSAY. The only firings today were lifting up the aircraft on a crane and firing it and I think they fired a total of six rounds at that time. They have done a great deal of flying with the aircraft asymmetrically loaded with the weapons. The firing will take place in the next few days.

LOCKHEED AND TECHNICAL EVALUATION

In August 1973 Lockheed Aircraft purchased manufacturing rights to the Enforcer, lending its considerable high-technology engineering expertise to an evaluation program then underway by the Marine Corps, the Naval Air Systems Command, and the Joint Technical Coordinating Group for Air Survivability. This study was initiated in 1973 by Deputy Secretary of Defense William Clements at the suggestion of a number of concerned members of the Appropriations and Armed Services Committees of both Houses.

Earlier that year I had undertaken an extensive effort to acquaint members of these committees of the availability of the Enforcer, and of a disturbing gap in the air operations spectrum between jet fighters and armed helicopters. This very dangerous gap is not officially recognized by the Air Force. However, we have encountered a number of experienced officers, in all the services, who admit deep concern over its existence.

The Air Force remains adamantly dedicated to pure jets for attack aircraft—ruling out utilization of the Enforcer or any other propjet—whatever its merits and advantages.

SERVICE RIVALRY

And since, under an obsolete agreement made in 1957 between the then Army and Air Force Chiefs of Staff, the Air Force continues to retain responsibility for providing close air support for the Army, this inflexible policy also bars the Army from utilizing fixed-wing, attack propjets. In my considered opinion, based on years of work in this specialized field, this insistence on jets means the Nation is taking unacceptable security risks in the field of close air support. I might add that a number of Army officers with whom we have talked feel it is totally unjustified for the Air Force to object to Army's acquisition of an aircraft the Air Force doesn't want.

Of almost equal significance to this committee is a very recent, still unreleased Pentagon study which proves the Enforcer would cost only a fraction of other close air support weapons such as the Harrier and the A-10. Both of these utilize jet engines which are not as effective or efficient in close support work as propjet engines—but many times more costly and vulnerable.

INSURANCE THROUGH NUMBERS

Even if viewed only as a standby option should present hopes and performance estimates in the close air support weapons field prove overly optimistic, the Enforcer offer prudent and economical insurance for the Nation.

Gen. George S. Brown points out in this month's issue of Air Force magazine that aircraft of "long endurance, high survivability,

and great firepower" will be needed to "offset the massive numerical armor advantages to the Warsaw Pact compared to NATO."

Last year in Germany I had the opportunity to discuss this NATO defense problem with Gen. Guenther Rall, Gen. Adolph Galland, and others. They pointed out that it must be assumed all jet-capable airfields are pretargeted and that within an hour of a major attack, all airbases in the forward combat zone will be rendered inoperable.

A relatively large number of propjets, capable of operating from short and unimproved fields, requiring no external starters or other support equipment and minimum maintenance, equipped with standoff missiles such as Mavericks, 30-mm gun pods, and 160-mm recoilless cannons, may offer our only aerial weapon capable, under these conditions, of effectively assisting NATO ground forces in checking in the tens of thousands of tanks now deployed against them. No matter how capable, a relatively few multimillion-dollar aircraft cannot cope with the numbers and distances involved. As Senator Barry Goldwater said in U.S. News a few weeks ago: "One expensive aircraft may be better than one inexpensive plane, but it is not better than five."

At Lockheed's proposed cost of \$0.76 million per copy, flyaway, in a quantity buy of only 250, the Enforcer is the only existing close air support weapon which can provide the numbers capability at an affordable price. For example, the acquisition cost of 2,000 Enforcers at \$700,000 per copy would be \$1.4 billion.

FLIGHT TESTS NEEDED

Because of the Enforcer's unique operating capabilities and low price, a number of well-informed members of the Senate and House have persisted in urging the Department of Defense to conduct operational flight tests with two to four prototypes. They have not, and we have not, asked that the Enforcer be put into production or into any Service's inventory. Therefore I am not here today to urge appropriation of funds to open a production line. I am, however, pleading with the committee to help us obtain meaningful flight tests, the only way to demonstrate the Enforcer concept and capability to the Congress and to the Nation. To quote Senator Goldwater again: "There is no way a computer can fly an airplane. Someone with eyes and a brain has to do that." General George Brown agreed when he said that, after all paper evaluation, "all we've got is the point at which an experimental test pilot has to strap on a piece of hardware, take it into the real world, apply all his hard-earned knowledge and skill—and tell us what we really have."

Last year we seemed very near our flight test goal. Deputy Secretary of Defense Clements had ordered a full engineering and survivability evaluation. To avoid disagreement over roles and missions, he tasked the Marines to conduct the evaluation. Mr. Clements told me and others in our meeting that if a full "paper" evaluation proved promising, we would then move on to flight tests. Before this very committee last May, Marine Commandant Robert Cushman, in answer to Congressman Robert Sikes' question, "Is this another paper study?" replied "No sir, I think we will have to fly it to get all the determinations."

The evaluation conducted by the Marines, the Naval Air Systems Command, and Joint Test Coordinating Group for Air Survivability

was certainly a thorough one, consuming more than a year. Opponents claimed to have discovered one deficiency after another. But the study disproved all these objections. It's now officially admitted the Enforcer will do everything we have claimed.

Lockheed has quoted a flight test package price of \$6 million for a full engineering program, the existing prototype plus three other prototypes, company flight tests, and engineering support of military flight tests. But each time we neared a decision to proceed, Air Force representatives, as jealous custodians of the role of close air support of ground forces, intervened in various ways to block a favorable decision.

THE "NO REQUIREMENT" BARRIER

We are at the point today where the Pentagon has been forced to admit after its own exhaustive study that the Enforcer will do all we have claimed it will do, and at very low acquisition cost. The bar now to operational flight tests is a remarkable conclusion—that because there is no sponsoring Service, there is therefore no requirement for the aircraft. We are therefore back to square one—there was no official requirement when our effort began, but a very obvious need. That need becomes more obvious almost daily as doubts accumulate about overly sophisticated close support systems.

APPEAL TO CONGRESS

Mr. Chairman, and members, let me repeat here that I do not appear today to ask you to fund the Enforcer for production. I do believe, however, it's going to require from Congress something more than the usual inquiries to the Pentagon to end this calculated pattern of delay in which the services are protecting one another's pet concepts and projects. In fact, we have reluctantly come to the conclusion only strong congressional direction, admittedly an approach Congress prefers to avoid, will end this exercise in semantics and produce the factual data and meaningful close-support comparisons Congress and the American people are entitled to.

In this connection, only last week Chairman F. Edward Hébert of the House Armed Services Committee told the House his committee was asking \$200 million to keep F-111 production lines open, as insurance in case the troubled B-1 bomber program is canceled.

Surely \$6 million to build, test fly, and demonstrate the new, economical close-support concept represented by the Enforcer is a reasonable price for insurance that our ground soldiers will have effective and sufficient close air support in case the also-troubled A-10 or Harrier programs are canceled or prove fiascoes.

We have, in this connection, discussed flight testing the Enforcer with both Chairman Hébert and Chairman John Stennis of the Senate Armed Forces Committee. Both assured us they would support a request from the Pentagon for flight test funds—requests which have never been forthcoming.

Gentlemen, Congress is the American people's "court of last resort," and in the ultimate, the custodian of the security of the Nation. It is in recognition of this awesome responsibility that I have appeared before you today.

Mr. SIKES. You realize, of course, a number of Members of Congress, including members of this committee, including myself, have felt this

aircraft should have a complete test. We have been interested in the low-cost feature and its economy of operation and as new equipment costs more and becomes more sophisticated, we feel that any reasonable promise of a less costly but useful weapon such as this should receive full testing.

Now, as you also know, the military has not indicated a desire to do this test. They haven't stated that they want the aircraft. They haven't asked for it. What you are suggesting is that the Congress simply appropriate funds and direct that appropriate test be made. Is that correct?

Mr. LINDSAY. Yes. I do regretfully come to the conclusion that is the only way it will be tested. I have been amazed at the opposition.

Mr. SIKES. Congress is generally reluctant to take such steps when there is no request from any branch of the military. Now, if Congress were to do so, there would be no assurance whatever that the money would be spent. The impoundments have been frequent in the last few years and those impoundments have been gotten into areas where there had been requests and demonstrated needs for funding.

Now, what is the advantage in an appropriation which has very little likelihood of being utilized?

Mr. LINDSAY. Mr. Sikes, I just cannot believe that the military is going to continue what I can only describe as an almost contemptuous attitude toward the wishes of Congress on this matter. I have had very high ranking officers tell me that they find the situation unbelievable and nearly incredible.

I think actually there exists a great body of officers at the higher levels who might want to do this. Now I have been reading Mr. Schlesinger's positions, I never had the pleasure of meeting with him, I hope to meet with him, but I think I read in his statements almost what I am saying.

Mr. Levine of the Wall Street Journal who has an interesting article today on the Enforcer.

Mr. SIKES. I have seen this article and I am going to place it in the record at this point.

Mr. LINDSAY. I appreciate that.

[The article follows:]

[From the Wall Street Journal, May 30, 1974]

AN ATTACK AIRCRAFT THAT'S CHEAP, GOOD GETS COLD SHOULDER

* * * * *

PROTOTYPE SITS IN STORAGE, IGNORED BY THE PENTAGON; THREAT TO PET PROJECTS?

(By Richard J. Levine)

Washington—It can take a lot to shake the Pentagon's weapons-building bureaucracy out of its accustomed ways—more, apparently, than even the formidable ingenuity and persistence of aircraft designer David B. Lindsay, Jr.

Mr. Lindsay, who is also a wealthy Florida newspaper publisher, has been trying for 3 years to interest the Defense Department in his design for an attack aircraft to provide close support to ground troops. He has built a rugged little warplane, called the Enforcer, that packs a potent punch, carries a bargain-basement price tag, gets high marks for performance—and leaves the Pentagon cold.

Designer Lindsay has run into one bureaucratic roadblock after another. He has failed to persuade the Pentagon to give the Enforcer a full-scale flight test, much less consider buying it.

"I'm totally frustrated," he says. "We aren't selling anything. We're just trying to get the plane tested. The Defense Department has given up knocking the airplane and now says, 'There's no requirement for it.'"

The apparent reason for official coolness is simply that the military brass fears that the Enforcer would show up, or even threaten, such pet projects as the Air Force's new A10 attack jet and the Marine Corps' vertical-liftoff Harrier; those planes, which are designed for the same close-support role as the Enforcer, are more costly and complex.

"The services are closing every door they can," says a staff member of the Senate Armed Services Committee. "The Enforcer is too practical and too cheap to appeal to them."

Lonely Storage

And so the prototype plane, developed entirely with funds put up by Mr. Lindsay and Piper Aircraft Corp., sits in lonely storage in Vero Beach, Fla., far from the wild blue yonder.

[Mr. Lindsay is an unpaid consultant both to Piper, which bought the prototype, patents and manufacturing rights from him in late 1970, and to Lockheed Aircraft Corp., which last year made an agreement with Piper that could give it manufacturing rights.]

Ironically, Pentagon rebuffs of the Enforcer have coincided with calls from Defense Secretary James Schlesinger for simpler, cheaper warplanes. And officials concede that Mr. Lindsay's baby is such a craft—and more besides. After seeing Air Force and Marine Corps studies of the Enforcer, Deputy Defense Secretary William Clements, the Pentagon procurement chief, wrote: "There is little question the Enforcer can meet the general performance claims."

But he added that "neither service sees a role for Enforcer in the combat scenarios on which their future plans for aircraft inventories are based." Charles Meyers, assistant director of Defense Department research for air warfare, puts it more plainly. "It's a nifty little airplane," he says. "But unfortunately the office of Secretary of Defense doesn't have the power to stimulate the services to have a need for the thing."

Uncomplicated and Inexpensive

What intrigues Mr. Meyers and other aircraft experts is that the Enforcer is uncomplicated and inexpensive. [At an estimated \$770,000 each, it would cost a lot less than the Harrier's \$4.3 million and the A10's \$3.4 million.] The Enforcer can operate from short, rough runways, stay aloft for long periods and deliver heavy fire-power—ideal qualities for close-support aircraft.

The Enforcer has a speed range of 86 to 440 miles an hour and is heavily armored to protect the pilot from ground fire. It mounts six internal .50-caliber machine guns that can each spit out 1,100 rounds a minute, and it can carry 10 rockets, missiles or bombs.

"As far as shooting up people with guns or stopping tanks with missiles," Mr. Lindsay says, "we think the Enforcer will do it as well as or better than the A10 and at one-fourth the price."

In an age of sleek jets, it's true, the Enforcer hardly appears sexy. It most resembles the famed World War II P51 Mustang and has, of all things, a propeller. But Mr. Lindsay stresses that the propeller is driven by a jet engine, which should make for extreme reliability and easy maintenance.

Moreover, he contends that a jet-prop plane like the Enforcer has a significant advantage over a pure jet in flying slow-and-low close-support missions. Because most of the heat from the engine is used to turn the propeller, rather than being pushed out the rear of the engine, the Enforcer should be a lot less vulnerable to heat-seeking antiaircraft missiles, which proved so deadly in last October's Middle east war.

While the Enforcer generally draws high marks, it isn't faultless. A pilot who has flown the plane describes it as a "bit of a tail dragger." And Gen. Robert Cushman, commandant of the Marine Corps, recently wrote that the Enforcer "would provide a lesser combat capability" than light attack jets currently in the Marines' inventory, although he didn't make any detailed comparisons.

The Enforcer grew out of Mr. Lindsay's interest in restoring P51 Mustangs during the 1960s for sale to Latin American countries through the U.S. Military-assistance program. Using ideas picked up from American pilots who had flown in Vietnam, Mr. Lindsay started designing the plane. In the spring of 1971, when the U.S. Air Force sought ideas for a counterinsurgency plane for the South Vietnam, he and Piper Aircraft stepped forward with the Enforcer.

In August 1971, Air Force pilots briefly flew the Enforcer at Eglin Air Force Base, Fla. One of them, now-retired Major James Tilburg, says today: "It did as much as or more than was designed into the test plan. Technically, it didn't have all that fancy stuff. It was just a good platform that could take the punishment and deliver the ordinance."

After these 1971 flights, the designer, Mr. Lindsay says, "we went back to Vero Beach and waited for an order." When nothing happened, he returned to the drawing board and kept on improving the aircraft. In early 1973, disgusted at the Government's inaction, he started making the rounds of Pentagon and Capitol Hill offices in an effort to win a full-scale flight test of his plane. But all he got was a paper study—and, last month, word that there isn't any need for the Enforcer. Today he will tell the full story to the House Appropriations Subcommittee on Defense.

About \$3 million has gone into the development of the Enforcer, roughly one-third of it from Mr. Lindsay's pocket. A full flight test would cost about \$6 million—money that Chairman John Stennis of the Senate Armed Services Committee has indicated would be available if requested by the Defense Department.

To Mr. Lindsay and such key legislators as Republican Senators Barry Goldwater of Arizona and Strom Thurmond of South Carolina, it makes good sense to test the Enforcer further. In Mr. Lindsay's view, the plane would provide "damn cheap insurance" against the failure of the A-10, not yet in production, and he contends that it would find a large market overseas, especially in Asia.

Perhaps Democratic Representative Robert Sikes of Florida summed up the situation best a year ago, when he told then-Navy Secretary John Warner during a hearing:

"I have noted other instances, Mr. Secretary, where weapons systems and equipment have been offered to the services but because they were not developed by the testing service, they were given the cold shoulder. I do not think that is the proper approach."

"I think the services should be willing to test equipment that has promise. The old P-51 was a great aircraft in its day. That was a long time ago. Maybe it no longer has any value. But this is a modernized version, and if it does have value, it could save the government a lot of money. We would like to have more than paper studies."

Mr. LINDSAY. I know Mr. Levine did travel with Mr. Schlesinger to Europe and I understand they discussed a great deal the problem of how to handle tanks economically. Mr. Schlesinger desires to simplify the system.

Now I come forward as an individual offering something to the military. If I am turned down after all these years of work, and the assistance of so many valued Members of Congress, then I doubt if many contractors will ever try it again.

Mr. SIKES. This committee is impressed with the fact that your company and others have expended their own funds in an effort to show that this is an aircraft which could perform a useful function in the defense installation. That in itself is a very unusual situation.

You certainly deserve credit for what you have done. I wish you well. I do not know how much more I can do at the moment.

The Russians are reportedly developing armed helicopters. How would the Enforcer cope with this threat?

Mr. LINDSAY. Because the Enforcer has a speed range that permits it to fly very slowly and maneuver very tightly, as well as to accelerate from slow to high speed rapidly, it is ideally suited to kill helicopters and its six .50 caliber machineguns are probably the choice weapon to kill helicopters. Of course, these same qualities make the Enforcer an ideal escort for friendly helicopters.

Mr. SIKES. Will the Enforcer be easily deployable in Europe?

Mr. LINDSAY. The Enforcer's ability to operate from Europe's roads and fields makes it unusually well suited for dispersed deploy-

ment. We think it's the only aircraft that of its attack lethality capable of operating from rough or improvised fields. Also, the Enforcer fits nicely into the expensive hardened revetments built by NATO in recent years, at great cost, which—we are told—are too small to accommodate the bomber-size A-10.

Mr. SIKES. Would the Enforcer be able to defend itself against jet fighters?

Mr. LINDSAY. A popular misconception is that jets would easily shoot down a propjet such as the Enforcer. Actually, we have had four F-4 Phantom jets bounce the Enforcer. By using the classic defensive advantage of a much smaller turning radius, the Enforcer avoided their attacks, by their own admission. It has, in fact, a good chance to shoot down jets by turning quickly onto their tails, especially if carrying Sidewinder missiles, for which it's qualified. Of course, the Enforcer can't pursue and attack a jet but it has a very good chance of success if it is attacked at low altitude—where it will always be operating. It is a defensive, not an offensive, air-to-air weapon.

Mr. SIKES. Could the Enforcer operate off carriers?

Mr. LINDSAY. A little known fact of history is that the Enforcer's spiritual ancestor, from which it is derived, the F-51D, was fully qualified for the Navy at the end of World War II by Capt. Robert Elder. Captain Elder is presently president of the Society of Experimental Test Pilots; he qualified that aircraft both for catapult and clear-deck operations. The far more powerful and rugged Enforcer possesses a superior carrier potential; the tailhook installation for the F-51 weighed only 23 pounds and the aft longerons of the Enforcer have been reinforced to accept such an installation.

Mr. SIKES. Is there any interest in the Enforcer from foreign governments?

Mr. LINDSAY. We have discussed this question at length with the military assistance and military sales people and they feel there is a large market. We ourselves have been in contact with a number of countries which have expressed a strong interest in the Enforcer and its unique capabilities.

Mr. SIKES. Why not use a nosewheel, as jets do, in the Enforcer?

Mr. LINDSAY. It's an inescapable fact that when thrust is applied around the fulcrum of the main landing gear a nosewheel will dig into the ground; that prohibits its operation from rough, muddy, or unprepared fields. By contrast, the Enforcer's upward-thrusting slipstream over the wing acts to lift the main landing gear from soft surfaces. Incidentally, we designed and built a nosewheel version but discarded it for the reasons mentioned above.

Mr. SIKES. Why do you say the Enforcer is less vulnerable in close support work than jets?

Mr. LINDSAY. It's a much small target, with a very low, diffused infrared silhouette emanating from one side above a wing, and it is fitted with the world's best ceramic composition armor, and carried more armor, per pound of airframe weight, than any aircraft in history. Its maneuverability makes it well adapted to nap-of-the-earth terrain protection techniques.

Mr. SIKES. How do you think the Enforcer could be best utilized by the Air Force and Army?

Mr. LINDSAY. Personally, I would like to see Air Force pilots given Army indoctrination, and assigned to Army at the corps level. The Enforcer could be used just as heavy corps artillery is used—it would back up the armed helicopter as the heavy artillery backs up divisional artillery.

Mr. SIKES. Why could not some of the Air Force's existing jets do this close-support work?

Mr. LINDSAY. As I mentioned in my prepared statement, we are now talking about close-support operations where our troops are in very close proximity to enemy forces. High-speed, swept-wing jets, with ordnance on wing stations, cannot slow up sufficiently, or turn tightly enough, to deliver with sufficient accuracy, or even to abort the pass if they find they are likely to strike their own forces. In general, of course, it is uneconomical and illogical to risk multimillion dollar, jet aircraft, designed for high-altitude operations, on low-altitude, close-support tasks where great speed is detrimental to efficient delivery.

Mr. SIKES. Have you discussed this aircraft with the military assistance program people?

Mr. LINDSAY. We have discussed the Enforcer with the military assistance people from the top down, including Adm. Ray Peet, who told us he thought he would have customers for the Enforcer if it were put through a normal service test program or if he himself had funds to test it.

Mr. SIKES. Do you have information on the attitude of the Army toward Enforcers?

Mr. LINDSAY. While this is a very delicate arena for an outsider to probe into, I would just like to say we have met with a number of Army officers of all grades in recent years who feel, privately, almost to a man, that they need the Enforcer or something like it to supplement their armed helicopters. They don't care too much what the color of the suit the pilot wears is, but they want someone to work directly with Army units rather than relying on centralized computer control.

Mr. SIKES. How can Congress be sure of the facts about the Enforcer?

Mr. LINDSAY. Well, we are not dealing here with a paper airplane. we are dealing with an aircraft which is already built and tested and with performance figures that are the result of private flight tests. Only an operational flight test will finally establish the facts—and that is what we are asking. My concept of a meaningful flight test program is to supply equal quantities of fuel and munitions at a selected military range, where an equal dollar value of competitive aircraft would compete on identical missions with the Enforcer. They should be tested under the direct surveillance of the GAO, tests being conducted in varying climatic areas, as was done many years ago.

Mr. SIKES. How would the Enforcer deliver its ordnance in a high-risk, highly defended environment?

Mr. LINDSAY. Either with long-range stand-off missiles, for which it is already qualified (E/O, FLIR, LASER, etc.) or with a nap-of-the-earth approach, such as helicopters execute, popping up just long enough to deliver the required ordnance.

Mr. SIKES. Should not the Enforcer be capable of greater speed?

Mr. LINDSAY. The Air Force says the A-10 was designed with the ideal speed range for close support. The Enforcer has a wider speed

range than the A-10, and is capable of flying safely at much slower speeds and at faster speeds. This would seem to indicate the speed is correct for the mission.

Mr. SIKES. Are there questions?

Mr. FLYNT. Yes; more of a comment than a question.

Mr. Lindsay, I am favorably impressed by the concept which you have developed in this and your willingness to proceed as near as I can tell without much help from the Department of Defense.

I was also impressed by your statement that if this plan, this concept which you have not only outlined but which you have definitively described very well, if the flight test does not take place, that it is quite likely that it will be a long time, if ever, before any person in the free-enterprise sector would ever spend the money, the energy, and the time that you have.

At this point in time, I do not think that either you, members of this committee, or other people could say whether or not it will be the success that you claim it will be, or the failure that the detractors of the Enforcers say it will be.

I think that only a comprehensive flight test will prove the accuracy of your statements or the accuracy of those who seek to refute your statements.

What would it cost to have a meaningful flight test?

Mr. LINDSAY. Lockheed's proposal is for four prototypes.

Mr. FLYNT. At about \$760,000 a copy?

Mr. LINDSAY. The total engineering package that the military is going to demand of them to include wind tunnel tests comes to about \$6 million, to include the hardware, all the engineering, all the support, and everything else.

I consider that very reasonable insurance in case the HARRIER or the A-10 does not quite make the grade.

Mr. FLYNT. This appears to be a case in which you have voluntarily done the R.D.T. & E. effort.

Mr. LINDSAY. Yes, sir.

Mr. FLYNT. Or at least the R. & D. effort.

Mr. LINDSAY. I have done all a civilian can do and perhaps a little more in that I have actually flown the plane some 50 hours. I have delivered weapons from it at a nice little range they have at Apalachicola, Fla.; I am speaking from the knowledge of what I know it will do, I fired 114 rockets in one salvo from the thing.

It does what I say. My statement is not good enough for the military, it is not good enough for the Congress, it is not good enough for the foreign countries that might be interested in it. Only what you say, a comprehensive flight test, will answer it.

Mr. FLYNT. You have done the R. & D. work on it, now you are asking this committee to attempt to direct the Department of Defense to do some test and evaluation of what you have done up to now?

Mr. LINDSAY. That sums it up, sir.

Mr. SIKES. Are there further statements or questions?

Mr. FLYNT. Thank you for your statement and your appearance, Mr. Lindsay.

Mr. SIKES. Thank you, Mr. Lindsay.

Mr. LINDSAY. Thank you for the privilege of being here.

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EASTERN EDITION

THURSDAY, MAY 30, 1974

MICROWAVE TRANSMISSION—PRINCETON, NEW

An Attack Aircraft That's Cheap, Good Gets Cold Shoulder

* * *

Prototype sits in storage,
ignored by the Pentagon;
Threat to Pet Projects?

By RICHARD J. LEVINE

Staff Reporter of THE NEW YORK TIMES

GERALD R. FORD LIBRARY

The item described below has been transferred from this file to:

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Item: 1 8x10 color photo > Enforcer Aircraft
 5 8x10 B&W photos

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John O. Marsh Files
General Subject File
Defense - Enforcer Close Air
Support Aircraft

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PHOTO
DAVID B. LEE

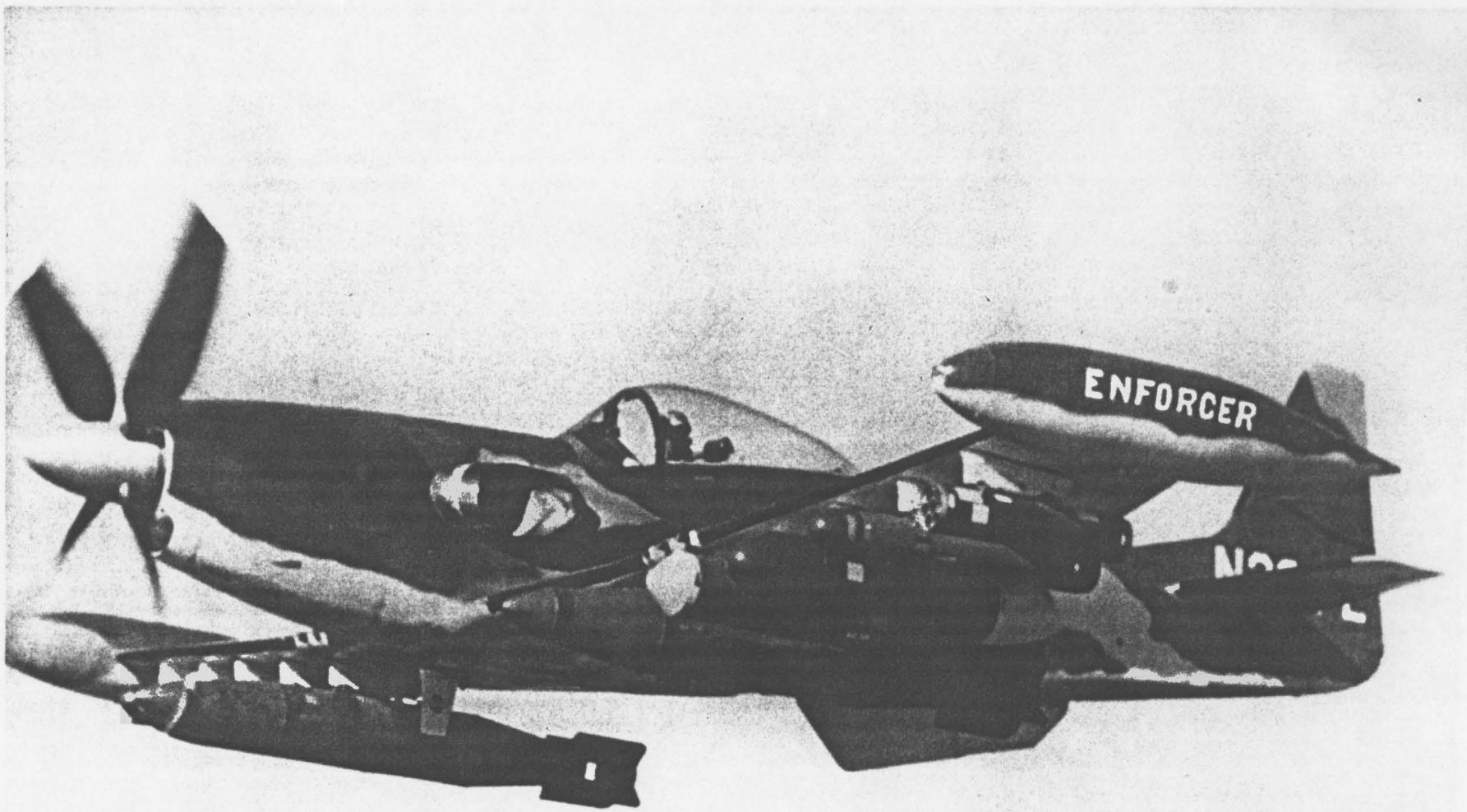
The ENFORCER, world's only jet turbine propellor-driven close support aircraft, is shown making a sweep over jungle terrain, carrying ordnance on all 10 of its underwing weapons stations. The load includes two 1000 lb. fire bombs, two flare dispensers containing 16 each two million candle power flares, two 19 round 2.75 in. anti-tank rocket launchers, and four 7 round 2.75 in. rocket launchers. The muzzles of the six 50 caliber machine guns mounted inside the wings are barely visible. Two thousand rounds of ammunition for the guns are also in the wings. Fuel tanks can be mounted on the underwing racks, but this is rarely necessary due to the wing-tip fuel tanks and self-sealing fuel tanks within the wings, plus the extremely low fuel consumption of the Lycoming T-55 engine (which also powers the Army's CH-47 Chinook helicopter). The ENFORCER carries more protective armor for its size than any aircraft in history. The cockpit is equipped with the latest Hamilton-Standard environmental controls and a rocket extraction seat or the Stencel ejection seat. (No. 2)

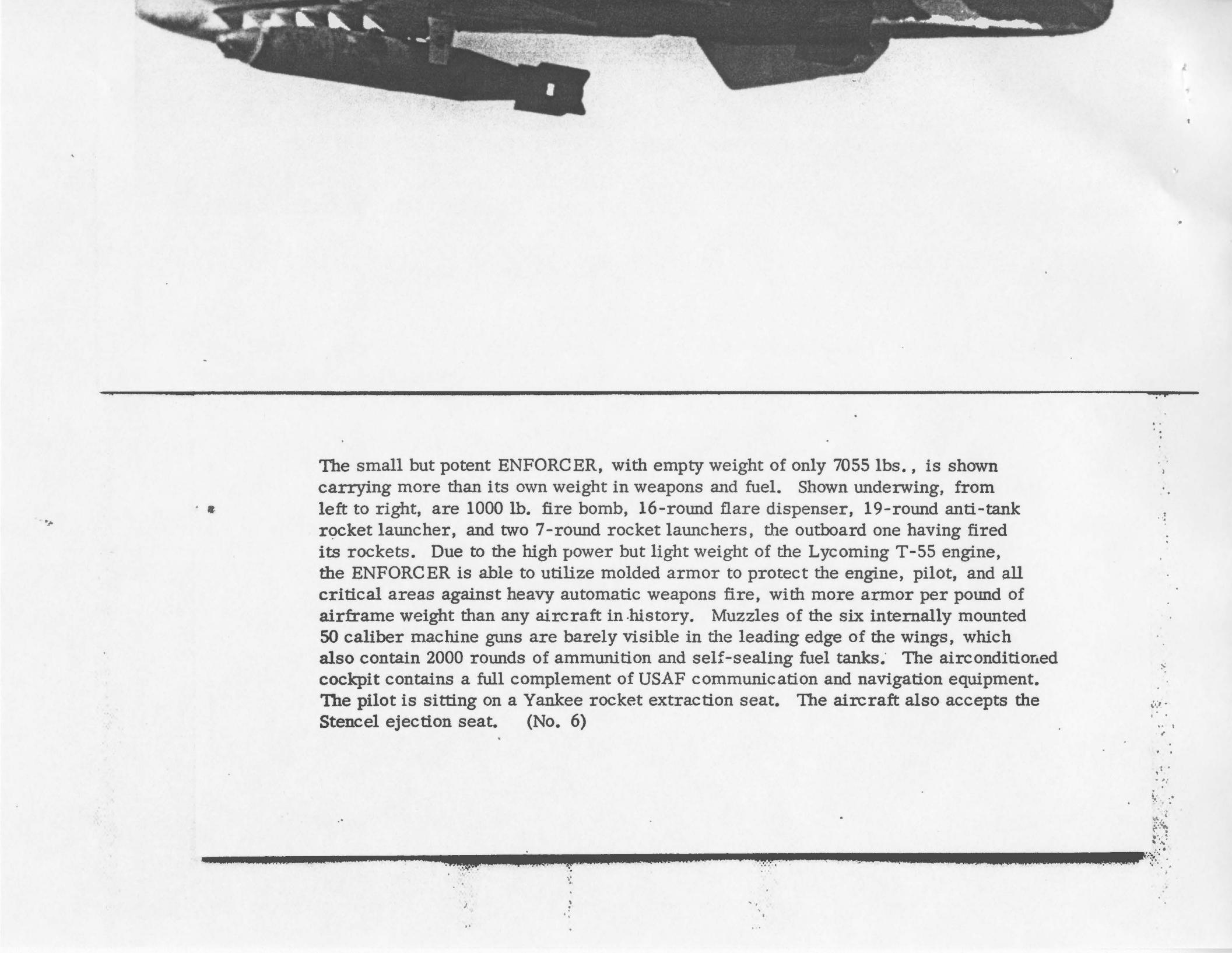
ENFORCER AIRCRAFT

- * World's only jet turbine, propellor-driven, low/high threat close support aircraft.
- * Uniquely low fuel consumption conserves critical fuel supplies and gives longest loiter time.
- * First U.S. combat aircraft designed, built and privately tested without any Government financing.
- * Developed especially for direct fire support of ground troops (close air support).
- * All alloy aluminum construction permits low price, quantity buys, and field repair.
- * Uniquely fills operational spectrum between armed helicopter and pure jet.
- * More armor per pound of airframe weight than any aircraft in the world.
- * Uncomplicated armament controls, in peripheral view of pilot. (Lindsay Patent)
- * Smallest silhouette, lowest infrared signature, lowest noise level, fastest acceleration, and highest survivability of any attack aircraft.
- * Engine hot section forward of all flammable liquids (no fuel in fuselage).
- * Lycoming T-55 same basic inventory engine as Army's standard medium helicopter, the CH-47 Chinook. Army holding as excess more than 300 of these engines removed from Chinooks. (Chinooks being retrofitted to higher horsepower.)
- * Large world-wide market already identified by DoD.
- * Six 50 caliber (12.7 mm) machine guns, with 2000 rounds of ammunition, internally in wings. Optionally, 2-20 mm. 3-barrel GE Gatling guns.
- * Ten under-wing stations for all standard inventory ordnance, including missiles.
- * Wide speed range (78-403 knots) and high maneuverability permit operating under low cloud ceilings, in mountainous areas, and under its own flares at night.
- * Performance proven by tests of flying prototype--not theoretically projected.
- * Ideal tank killer and helicopter escort or helicopter killer.
- * Capable of operating from short, unprepared fields in combat zone to obtain fuel, 50 caliber and 106 mm. ammunition from ground combat units. (Commonality!)
- * Low initial cost, extremely low operation and maintenance time and costs (less than \$150/flying hour) resulting in high in-commission rate.
- * Ferryable world-wide without air-to-air refueling.
- * Simplicity guarantees ease of pilot and ground crew training, plus effective utilization in all countries.

For further information, please telephone or write:

David B. Lindsay
Area Code 813/958-7755
Box 1746, Sarasota, FL 33578





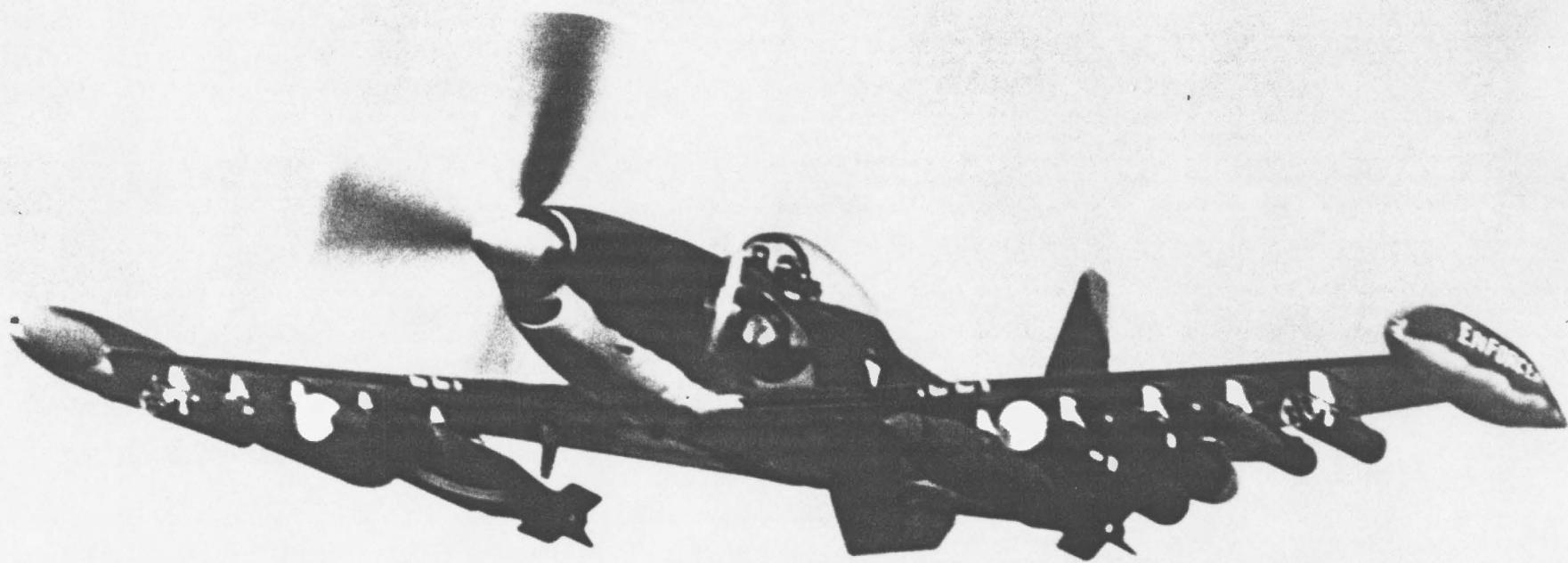
The small but potent ENFORCER, with empty weight of only 7055 lbs., is shown carrying more than its own weight in weapons and fuel. Shown underwing, from left to right, are 1000 lb. fire bomb, 16-round flare dispenser, 19-round anti-tank rocket launcher, and two 7-round rocket launchers, the outboard one having fired its rockets. Due to the high power but light weight of the Lycoming T-55 engine, the ENFORCER is able to utilize molded armor to protect the engine, pilot, and all critical areas against heavy automatic weapons fire, with more armor per pound of airframe weight than any aircraft in history. Muzzles of the six internally mounted 50 caliber machine guns are barely visible in the leading edge of the wings, which also contain 2000 rounds of ammunition and self-sealing fuel tanks. The airconditioned cockpit contains a full complement of USAF communication and navigation equipment. The pilot is sitting on a Yankee rocket extraction seat. The aircraft also accepts the Stencel ejection seat. (No. 6)

ENFORCER AIRCRAFT

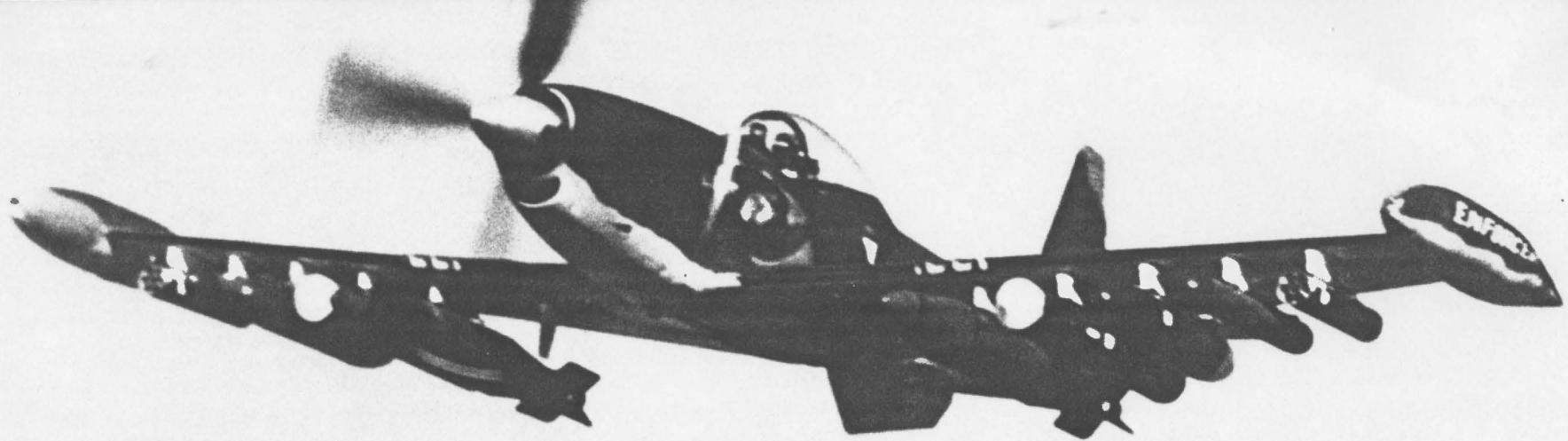
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ENFORCER with 10 underwing weapons pylons and six internal 50 caliber machine



ENFORCER with 10 underwing weapons pylons and six internal 50 caliber machine guns. Fuel is carried in wing-tip tanks and in self-sealing fuel cells in wings. Weighing only 7055 lbs. empty, the aircraft carries more than its own weight in munitions and fuel. Powered by a Lycoming T-55 engine, it is the world's only jet turbine propellor-driven close support aircraft capable of operating in light or high intensity hostile environments. Two of its four landing lights can be seen in the noses of its tip-tanks. (No. 4)

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- * Six 50 caliber (12.7 mm) machine guns, with 2000 rounds of ammunition, internally in wings. Optionally, 2-20 mm. 3-barrel GE Gatling guns.
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- * Ferryable world-wide without air-to-air refueling.
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The ENFORCER's extremely low infrared profile to heat-seeking missiles results from over 95% of its energy being used to turn a propellor, with the small residual thrust exhausted through the patented over-wing system shown on the port side of the aircraft. The light weight of the Lycoming T-55 engine permits the use of more protective armor than on any other aircraft of comparable size. At the leading edge of the left wing can be seen the muzzles of three of the six 50 caliber machine guns mounted inside the wings, together with 2000 rounds of ammunition. The aircraft also has 10 under-wing weapons pylons. (No. 3)

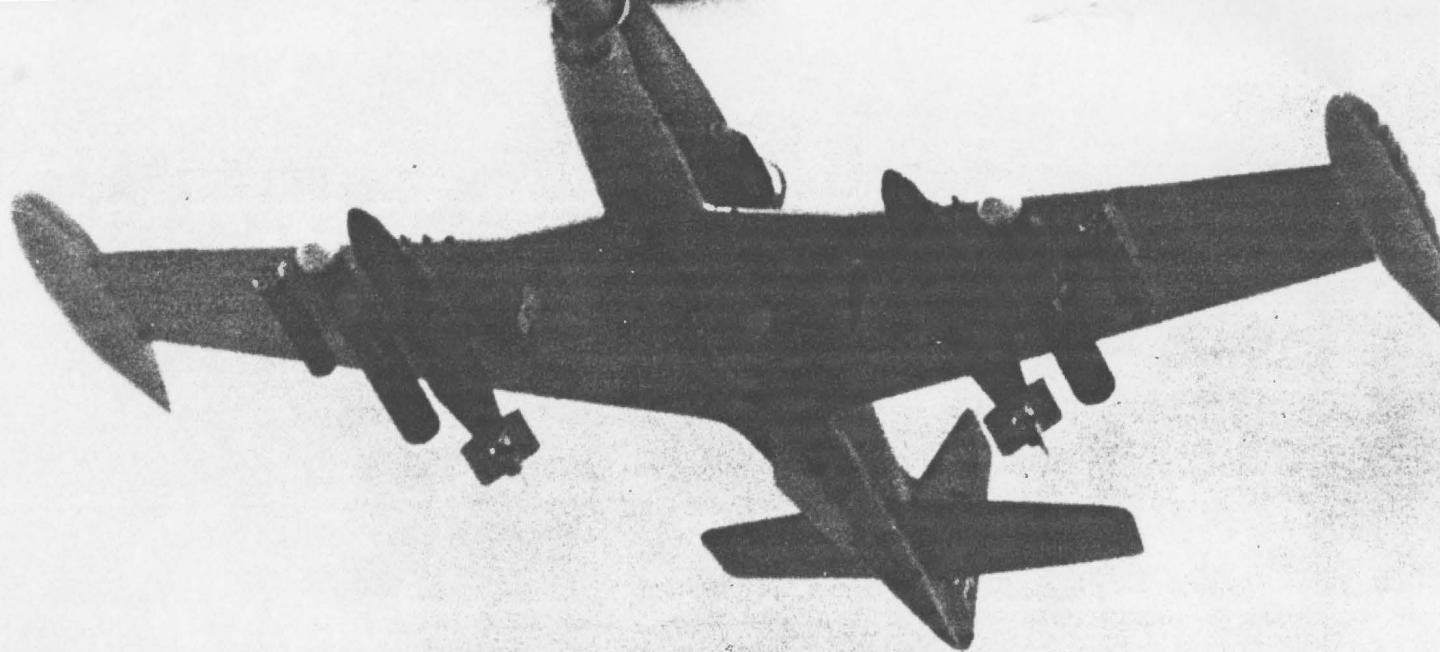
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This gun camera photo, taken during live ordnance weapons testing, shows the ENFORCER carrying two 1000 lb. finned fire bombs, two 16-round flare dispensers, and two 7-round rocket launchers, with the muzzles of its six internally mounted machine guns protruding from the leading edge of the wing. Additionally, 2000 rounds of cal. 50 ammunition are carried. (No. 1)

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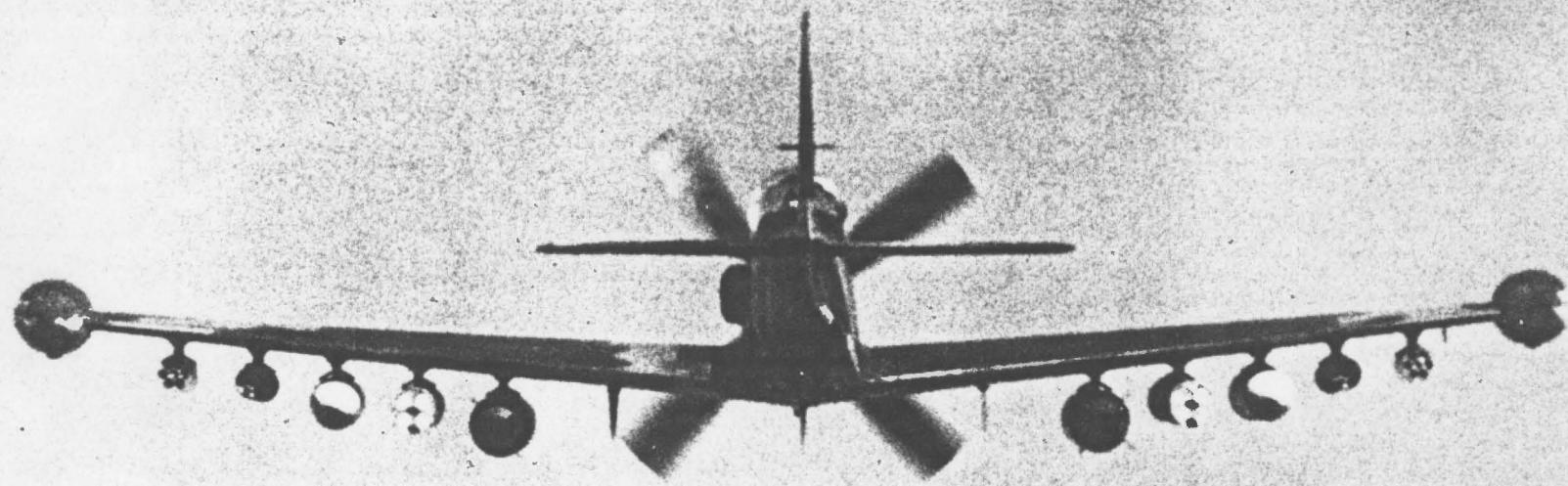
The ENFORCER during assymetrical separation tests of BLU-27B finned fire bombs. This store is considered to be one of the most critical for fit and separation, but the drops were clean and instantaneous without need of explosive charges. The other BLU-27B had been dropped earlier. Other munitions being carried are two 16-round flare pods and two 19-round 2.75 in. rocket launchers, in addition to the six internally mounted 50 caliber machine guns. This same configuration was flown at night, with all of the ordnance being dispensed on target under the light of flares dropped by ENFORCER itself. (Gun camera photo) (No. 7)

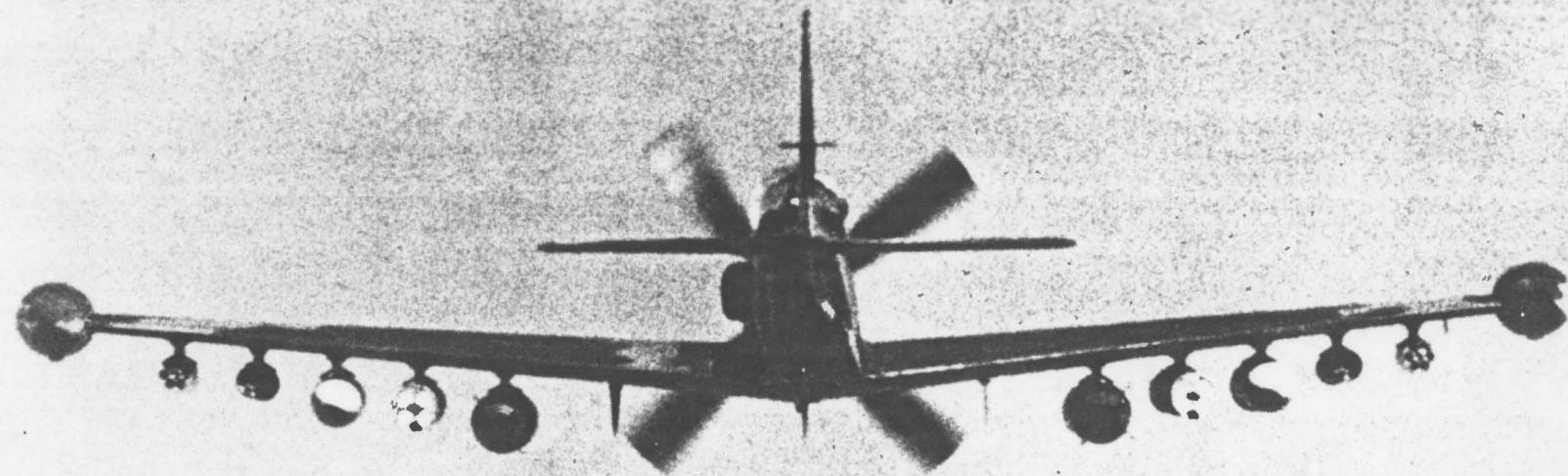
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ENFORCER carrying live ordnance on 10 underwing stations, with six M-3 .50 caliber machine guns with 2000 rounds of ammunition hidden inside the wings. Fuel is in the wing-tip tanks and the self-sealing fuel cells inside the wings. Weapons being carried are two 1000 lb. finned fire bombs, two 16-round flare pods, two 19-round 2.75 in. rocket pods and four 7-round 2.75 in. rocket pods. The aircraft, which is the world's only jet turbine close support aircraft capable of operating in low or high intensity hostile environment, is powered by 2445 SHP Lycoming T-55 turbine engine. (No. 5)

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