COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

095954

74-034

B-156137

MAR 20 1974

The Honorable John L. McClellan
Chairman, Committee on Appropriations
United States Senate

Dear Mr. Chairman:

In recent work relating to the effectiveness of the A-7 aircraft, we obtained some information that may be useful to the Committee in considering the role of the A-7 and A-10 aircraft. We interviewed more than 20 pilots who had flown the A-7 aircraft in combat in Southeast Asia. We interviewed these Air Force and Navy pilots at four different installations on a nonattribution basis.

This report summarizes the combat pilots' observations and other information we gathered. Our review did not encompass the A-10 aircraft and we are not attempting in this report to compare the A-7 with the A-10 but rather to convey pilots' opinions on the effectiveness of the A-7 aircraft as well as some of our own observations.

Purpose and use of the A-7

The A-7 is a single-seat, single-engine, subsonic, attack aircraft developed initially by the Navy and now used by both the Navy and Air Force.

This aircraft's purpose is to perform the attack function. In the Navy this includes launching the aircraft from an aircraft carrier at sea and delivering ordnance against

701889 / 095954

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

095954

B-156137

MAR 20 1974

The Honorable John L. McClellan
Chairman, Committee on Appropriations
United States Senate

Dear Mr. Chairman:

In recent work relating to the effectiveness of the A-7 aircraft, we obtained some information that may be useful to the Committee in considering the role of the A-7 and A-10 aircraft. We interviewed more than 20 pilots who had flown the A-7 aircraft in combat in Southeast Asia. We interviewed these Air Force and Navy pilots at four different installations on a nonattribution basis.

This report summarizes the combat pilots' observations and other information we gathered. Our review did not encompass the A-10 aircraft and we are not attempting in this report to compare the A-7 with the A-10 but rather to convey pilots' opinions on the effectiveness of the A-7 aircraft as well as some of our own observations.

Purpose and use of the A-7

The A-7 is a single-seat, single-engine, subsonic, attack aircraft developed initially by the Navy and now used by both the Navy and Air Force.

This aircraft's purpose is to perform the attack function. In the Navy this includes launching the aircraft from an aircraft carrier at sea and delivering ordnance against

701889 / 095954

in the 1960s. The accuracy of the A-7D and A-7E models, which were more sophisticated and were equipped with an integrated electronic bombing and navigation system, was an improvement of about 50 percent over previous A-7 models and other competitive aircraft.

The military services do not require pilots to be trained to fully use the more sophisticated electronic bombing system. According to the pilots, the Air Force considers an A-7D pilot to be a trained professional when he completes flight training and maintains a circle of error average which is three times as large as that attainable by the sophisticated bombing system. Likewise, training reports indicate that Navy pilots are not required to perform on a level equal to the accuracy built into the sophisticated A-7 bombing system.

The tactics employed in attacks on principal targets in Southeast Asia required each aircraft to follow the squadron leader into the target. In that situation, it was not necessary for the following aircraft to use the bombing system. The same tactics were employed by all aircraft regardless of bombing system and there may be some question as to the need for a sophisticated bombing system in all aircraft taking part in a mission. A "hi-lo" mix might be suitable in view of the fact that the sophisticated bombing system was not used on all missions performed in Southeast Asia.

Survivability

In Southeast Asia the major threats to aircraft were surface-to-air missiles, antiaircraft fire, and small-arms fire below 3,500 feet. Combat pilots described these individually as being at times intense and collectively as being a major test of the survivability of aircraft. Air Force pilots believe that the A-7 has shown good survivability in this environment because in actual use there was less than 1 aircraft lost for every 1,000 sorties.

The pilots attributed high A-7 survivability in part to operational tactics and in part to the airplane's design.

In combat they generally stayed above small arms fire because intense small arms fire at lower altitudes would adversely affect their ability to aim at a target. They pointed out that if their aim was off they would have to pass over the target a second time and this could significantly decrease survivability.

Air Force pilots said that the main factor in surviving was their ability to perform rapid changes in altitude, direction, and speed. A plane with a relatively high-thrust engine can perform these changes better, particularly in turns, than a plane with a relatively low thrust engine. Speed also allows quick entry and exit from areas of hostile fire. These factors were considered to be more important than armor protection. (See p. 5.)

Reliability

In actual service use, reliability problems have been encountered with some major components, including the engine and radar set used in the D and E models. We found indications that the full system capability rate for those models was lower than the rate of some other aircraft used in Southeast Asia in the attack role.

Capability

Air Force pilots stated that with the A-7D they could close roads in front of and behind convoys and that this was an important capability in urban areas, such as Europe, where tanks could be expected to travel on existing roads. Navy pilots stated that with the A-7 they could destroy tanks on the first pass with their guided bombs.

Air Force pilots expressed the opinion that the 30mm gun to be placed on the A-10 will not be as accurate as the 20mm gun on the A-7. They believe that the 30mm gun will disable but not destroy tanks and that the 20mm gun is effective against trucks and troops but will not stop tanks. The actual

capability of the 30mm gun had not been determined from experience with operational aircraft. Tests from a static ground installation indicate that the 30mm gun will be able to penetrate some areas of a tank.

Air Force pilots stated that in an aircraft equipped with a gun, such as the A-10 which uses a 30mm gun, an "iron" sight is adequate and a sophisticated sighting mechanism such as that used in the A-7D and E is not needed. For small targets the pilots preferred a gun to a bomb because the gun shoots forward and provides visual sightings of hits. They said that if they had to go low to see a target they would want to have the ability to shoot at it.

In response to our inquiry whether there were any improvements that combat pilots desired in the A-7 to enhance its overall capability, the Air Force pilots said that the plane could use a new doppler radar and radar altimeter because these did not function adequately in the full range of military operations. Navy pilots stated that the aircraft needed night capability against moving targets.

The A-10 combat scenario described to us by the Air Force during a briefing indicated that the primary advantage of the A-10 will be its ability to kill enemy tanks, which is part of the total attack function. Air Force combat pilots stated that they will always be able to do a better job with such special-purpose aircraft. They also pointed to the FB-111 which they characterized as being best suited to attack area targets. Some Navy pilots viewed these aircraft as examples of over-specialization within the attack function. They believed it is possible to justify an aircraft such as the A-10 only for carefully preselected and limited operational missions and problems.

Agency comments

We discussed this information with DOD officials and considered their comments in preparing this report. The major points the officials raised were:

--This report did not present the full picture since it was limited to the viewpoints of A-7 pilots and did not present the viewpoints of pilots who had flown the A-10. DOD officials also felt that most pilots are biased toward their current plane and that the A-7 pilots had exhibited this bias.

--A "hi-lo" mix of A-7 bombing systems would be undesirable because a mission could be lost if the aircraft with the sophisticated bombing system was shot down. This sophisticated bombing system provides operational flexibility and improves navigation and accuracy.

--The A-10's high performance at low and medium speeds combined with its "hardening" may enable it to perform all aspects of the close-air-support mission.

Observations

We made the following observations on the basis of available information.

1. The pilots who flew the A-7 in combat believed it to be an effective weapon system for the types of missions on which it was employed.

2. The electronic bombing system in the A-7 may be useful on some aircraft on some missions but may not be needed on all aircraft or on all missions. As noted above the Air Force does not agree.

3. The military services do not demand that their pilots achieve the degree of accuracy with the A-7 electronic system that the system has been designed to deliver.

4. Capability against moving targets at night would seem to be desirable for any attack aircraft envisioned for the European theater but both the A-7 and A-10 lack this capability.

5. There is a need for the Air Force to prove, through appropriate tests, the interface between the 30mm gun and the A-10, the tank killing capability of the 30mm gun, and the actual survivability of the A-10 before the Air Force commits funds to the production of these weapon systems.

We would welcome a discussion with you or your office on any of the above matters which may be of particular interest to your Committee. We would be pleased to follow up and further develop our tentative observations if you so desire. We are planning to monitor the projected flyoff between the A-7 and the A-10, and we will be particularly interested in the capability and survivability of the A-10 in relation to the anticipated European theater threat.

This report is also being sent to the Chairman of the House Committee on Appropriations and the Chairmen of the House and Senate Committees on Armed Services

Sincerely yours,

Comptroller General
of the United States