The Spirit of '76 Pod Newsletter

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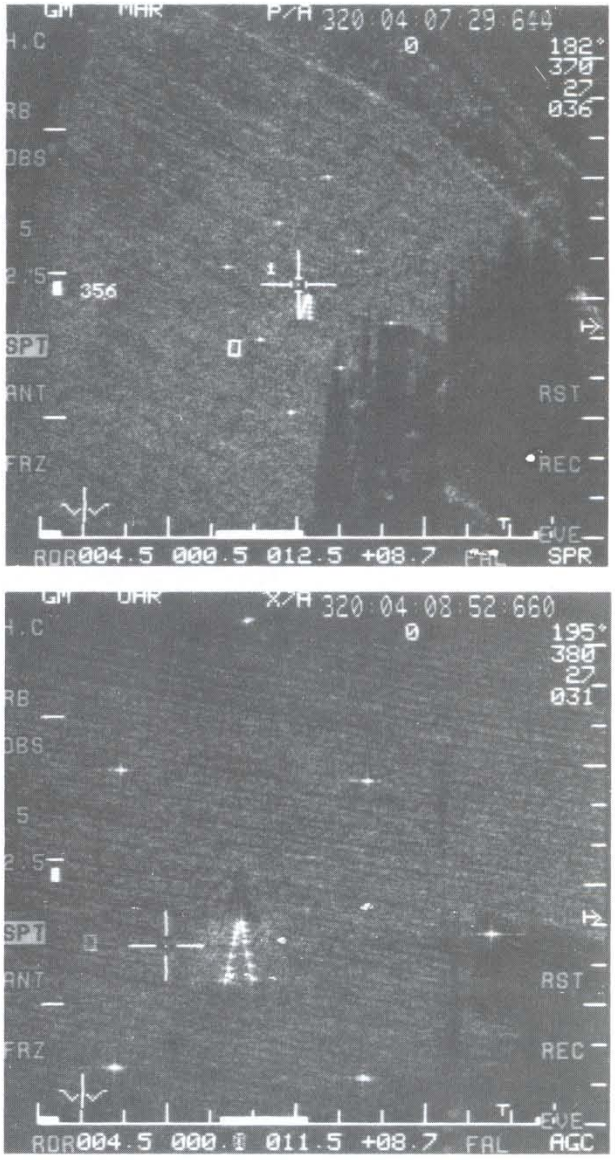
Successful AN/APG-76 High Resolution Flight Test

On November 15, Westinghouse Norden Systems conducted another high resolution flight test using the modified AN/APG-76 radar on board the Gulfstream II test aircraft. During the flights, three-foot and **one-foot real-time, on-board SAR** imagery was generated at ranges over 50 nmi. This capability will first appear in the Air Force F-16 pod this spring.

Air Force F-16 Pod Program On Schedule

The AN/APG-76 Pod program for the U.S. Air Force is on schedule and will be ready for flight test aboard an F-16 by the end of the first quarter of 1995. The radar operator controls and displays have been developed and tested and the pod structural modifications will be completed shortly. Final system integration will be completed this year and the AN/APG-76 will be integrated into the pod early next year.



AN/APG-76 real-time, on-board 3-foot (top) and 1-foot (bottom) SAR imagery of an array of radar reflectors at Wolf-Webster Air Field. The individual reflectors are 3 feet apart at the apex and are clearly resolved by the radar. The range to the target is over 30 nmi. Note the shadow of trees in lower right.

Gray Wolf to Fly in JTF-95-2

The Gray Wolf S-3 with the AN/APG-76 Radar Pod is scheduled to participate in the COMSECONDFLT Amphibious Exercise JTF-95-2 in January/February. Gray Wolf operation during this exercise is being jointly sponsored by Commander Sea Control Wing, Atlantic and the Defense Airborne Reconnaissance Office.

Gray Wolf Transfers to VS-30

The Gray Wolf aircraft has been transferred from the "Scouts" of VS-24 to VS-30, the "Diamond Cutters," under the command of CDR Bruce Remick. CDR Remick and his Gray Wolf crew will be training with Norden engineers Chris Patrick and Bruce Jacobson at Cecil Field during December and January to operate the radar and ground station, and to prepare tactically for JTF-95-2.

Absolute Position Accuracy

Norden Systems has been investigating a precision targeting technique that is uniquely qualified to target both moving and fixed ground targets. Conventional SAR systems (i.e., single antenna providing only range/doppler information), using conventional INSs have not provided accurate cross-range target location.

Under a Norden Systems' Precision Targeting IR&D program, Absolute Position Accuracy targeting has been demonstrated using the AN/APG-76 radar and a GPS/INS at ranges of up to 40 nmi against fixed targets. Real-time, on-board targeting accuracies of 20 meters have been demonstrated with a "single SAR frame" approach while "multiple-frame" (i.e. GATS/GAM) approaches have demonstrated accuracies of 5 to 10 meters. The program combines SAR measurements with precision "own-ship" position and velocity data available from the GPS/INS system. This technique was demonstrated in flight tests on Norden Systems' Gulfstream II aircraft. This technique is currently being extended to include moving targets using the AN/APG-76's simultaneous SAR and Moving Target Indication (MTI) mode.

The IR&D program has demonstrated that a "squinted" SAR system with an articulated antenna can provide absolute geolocation in a stand-off scenario. This capability, together with a "3-D SAR" system (as demonstrated by Norden with this same radar on the ARPA/U.S. Army IFSARE program), could provide a real-time, on-board three-dimensional absolute geolocation system.

Season's Greetings

The Spirit of '76 Pod Newsletter is published by the Advanced Programs Department of Westinghouse Norden Systems. Contact Norman Thomas, Program Manager, at (203)852-7725.