

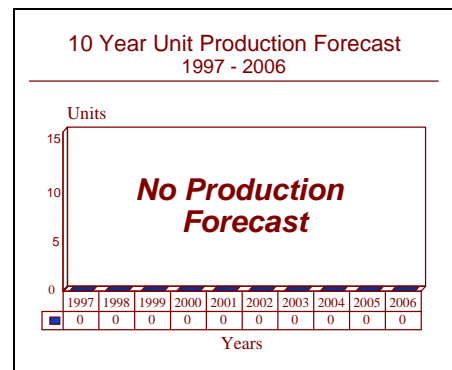
ARCHIVED REPORT

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WWABNCP/PACCS - Archived 1/98

Outlook

- All 39 EC-135 aircraft upgraded by 1991
- No additional funding expected
- This report will be dropped next year, 1998



Orientation

Description. The Worldwide Airborne National Command Post (WWABNCP)/Post Attack Command and Control System (PACCS) is a US emergency command, control, and communications system.

Sponsor

US Air Force
 Air Force Materiel Command
 Worldwide Airborne Command Post System Program
 Office
 Tinker AFB, Oklahoma (OK)
 USA
 (Program management)

Weapons Lab
 Kirtland AFB, New Mexico (NM)
 USA
 (EMP testing)

Contractors

Boeing Co
 Boeing Commercial Airplane Group
 PO Box 7730
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 (WWABNCP system engineering and integration/
 ALCC for Peacekeeper)

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Electrospace Systems Inc
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 (PACER LINK program)

GTE Government Systems Corp
 Communications Systems Division
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 (Airborne launch control center equipment)

Rockwell International Corp
 Collins Avionics & Communications
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 (WWABNCP data processing systems installation)

TRW Inc
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 (Prime contractor for EMP upgrade)

Status. PACER LINK Phase I upgrade was completed in 1991. PACER LINK Phase II was completed in 1993.

Total Produced. All 39 EC-135 aircraft were upgraded by the end of 1991 with PACER LINK Phase I and upgraded again with PACER LINK Phase II by the end of 1993.

Application. WWABNCP provides redundant, survivable communications that allow for survivable command and control of all elements of the US triad of nuclear forces. PACCS provides redundant, survivable communications that enable the command and control of US strategic nuclear assets.

Price Range. Indeterminate as this was an upgrade program.

Technical Data

Design Features. The mission of the Worldwide Airborne National Command Post system is to provide a redundant and survivable strategic C³ network that permits the National Command Authorities to command and control land-based, sea-based and airborne US strategic nuclear forces even after the destruction of the National Military Command Center (NMCC) at the Pentagon, the Alternative National Military Command Center at Fort Ritchie, Maryland, and other underground command centers. The parallel mission of the Post Attack Command and Control System is to command and control Air Combat Command (ACC) [formerly Strategic Air Command (SAC) after a restructuring and renaming in 1992] bomber and intercontinental ballistic missile (ICBM) forces in the event that underground ACC command centers are destroyed by a first strike.

The WWABNCP/PACCS system consists of 39 EC-135 aircraft and four E-4B aircraft. During the Cold War tensions, at least one WWABNCP/PACCS aircraft was kept airborne at all times. Other command post aircraft were ordered to maintain a five-minute ground alert. On July 24, 1990, principally due to the diminished threat from the then Soviet Union, EC-135Cs ceased to be on continuous airborne alert, but at least one aircraft continues to fly a mission each day.

The infrastructure of WWABNCP/PACCS includes the following components: The E-4B National Emergency Airborne Command Post (NEACP), which would be used by the President of the United States in a crisis; the E-4B aircraft, code-named "Night Watch," which supports the Joint Chiefs of Staff; the EC-135 ACC airborne command post code-named "Looking Glass," which is commanded by an Air Force general with the authority to command all ACC forces; and EC-135 aircraft assigned to US theater commanders (ie., the respective Commanders-in-Chief in Europe, Atlantic and Pacific theaters).

Each command post aircraft has the capability to relay launch orders to strategic and/or theater nuclear forces. In addition, specific EC-135 aircraft can also act as an airborne launch control center (ALCC) for Minuteman missiles. Boeing is under contract to develop an ALCC capability that will enable EC-135 aircraft to launch MX Peacekeeper missiles.

EC-135 aircraft are equipped with Very Low Frequency (VLF), Ultra High Frequency (UHF) and High Frequency (HF) communications systems. ACC bombers are now being equipped with VLF Miniature Receive Terminals (MRTs) to receive VLF communications from the EC-135's ARC-96 transmitter.

Variants/Upgrades

Most EC-135s were modified from KC-135 Strato-tankers in the 1960s (five KC-135s converted in 1960, more modified in 1962, and 17 new KC-135Bs converted in 1965), with regular modifications since then.

The most recent electronics upgrade program involving WWABNCP aircraft was the PACER LINK project. There were five basic goals in Phase I of PACER LINK.

The first goal was to reduce from seven (EC-135A/C/G/H/J/L/P) to two the configurations of the EC-135s. The EC-135C/H/J/Ps were to be converted to EC-135 communications-configured command post aircraft. The EC-135A/G/Ls were to become EC-135 ALCC/relay platforms. The second goal was to standardize for all command post and relay aircraft the interior configurations, systems equipment layouts, and seating arrangements. However, each command post aircraft includes a communications rack unique to the requirements of the specific theater or mission to which the aircraft is oriented.

The third goal, with the primary support coming out of PE#0101312F, was the provision of a baseline configuration for EMP hardening, including the addition to all critical communications system components of protection from transient radiation effects. This effort was completed in FY92.

The fourth goal was a continuous one. It took advantage of performance enhancements enabled by new telecommunications technology. This resulted in a significant enhancement of voice and data communications capabilities.

The fifth and final goal was to incorporate modifications that support future systems that will increase the aircraft's mission capability.

The primary new communications system installed onboard the aircraft was the Digital Airborne Intercommunications and Switching System (DAISS). This is a solid-state, red/black switching system that provides command post crews with the user features available with any modern telephone system. This includes preset conferencing, progressive conferencing, simulcast, call waiting, class marking, and simultaneous use of voice and data. The DAISS replaced the ARC-89 and operates with the ARC-171.

Another new communications system deployed was the Frequency Division Multiplexer System (FDMS), which reduces the time that any one transmitter or receiver spends on the air, as well as significantly increasing the number of calls that the voice communications system can handle.

There had been talk of a PACER LINK Phase III program; however, this died down with the recent defense cuts and troop drawbacks. It is unlikely that a PACER LINK Phase III will proceed at this time. No further details are available.

Program Review

Background. The WWABNCP/PACCS system has been in existence since the early 1960s. In 1983, the USAF decided that it had an opportunity to change the system and upgrade system components, some of which dated back to the 1950s and 1960s. The service then initiated a program management directive for a Class V (permanent) modification to the EC-135 fleet. The PACER LINK program began in 1984 with the award of the contract to Electrospace Systems.

The Air Force requested US\$13.8 million for a new EC-135 replacement program under PE#0604216F in FY89. The McDonnell-Douglas C-17 and KC-10, Boeing 747 and E-6, and Lockheed C-5B were all candidates for the EC-135 replacement. Congress, however, terminated the new start on "affordability" grounds.

In FY90, PACCS scheduled work included: continuing planning activities and acquiring long-lead items for the FY91 system test; conducting hardness maintenance/hardness surveillance; continuing survivability/vul-

nerability analysis of acquisition and modifications programs; and starting the FY91 system test. Scheduled work in FY91 included: completing major systems testing; conducting hardness maintenance/hardness surveillance; continuing survivability/vulnerability analysis of acquisition and modification programs; analyzing FY91 test data and identifying corrective actions; and setting up the Hardness Review Board.

During FY92, work focused on the following: initiating corrective actions based on FY91 test data; conducting hardness maintenance/hardness surveillance; continuing survivability/vulnerability analysis of acquisition and modifications programs; and conducting and initiating actions from the Hardness Review Board. The PACCS FY93 agenda continued with the same schedule as FY92 and included a major systems test. The program was completed in 1993 and no further funding has been allocated.

Funding

With the completion of the program in 1993, no funding has been allocated from FY94 onward. Other elements of the PACCS and WWABNCP programs are funded out of classified budget line items, as well as modification of aircraft accounts.

Recent Contracts

No recent contracts have been identified.

Timetable

1960	EC-135 WWABNCPs first flew
1984	Contract awarded to Electrospace for PACER LINK
1988	First completely modified command post aircraft delivered to SAC
1991	PACER LINK Phase I completed
1993	PACER LINK Phase II completed

Worldwide Distribution

This is a **US Air Force** program which serves as part of the US Department of Defense's overall emergency command, control and communications system.

Forecast Rationale

Except for those parts listed as continuing technology upgrades, PACER LINK Phase I, at least for the EC-135s, has been completed. It should be noted that data can be somewhat vague in certain respects due to the low level of information available about these classified aircraft. For example, the modification documents refer to a total of 20 EC-135C/H/J/Ps being modified. No mention is made of the EC-135A/G/Ls, the ones being modified for the ALCC mission. While there is a modification program number assigned to the ALCC work, there is no funding being shown.

Mention has been made of a PACER LINK Phase III, specifically for the EC-135, although no funding is

attached to this, nor has it come up in any documents. Further obscurity has been created by the reorganization of the Air Force, which included the elimination of the structure based on SAC, TAC, and MAC commands which were combined into one command, Air Combat Command (ACC). The reorganization may be interpreted as a reduced need for command post aircraft. Finally, the collapse of the Soviet Union and the Warsaw Pact powers, along with the adversarial threat they carried, has further decreased the urgency of some of the command post missions.

Funding ended with the completion of the program in 1993.

Ten-Year Outlook

The forecast chart has been omitted.

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