

551st ELECTRONIC SYSTEMS WING



MISSION

The 551st Electronic Systems Wing, a unit of the Air Force Electronic Systems Center at Hanscom AFB, MA, delivers superior capabilities from assigned programs: AWACS, Joint STARS, E-10A/MP-RTIP, Mission Planning, and Weather providing strategic support to ongoing operations, identifying capability information integration opportunities and equipping the war fighter with the technical edge needed to meet combatant mission requirements.

The wing's mission is execute a \$12 billion in approved program funds to develop, provide, sustain and evolve integrated current and future surveillance, battle planning, battle management, and battle execution capabilities to meet United States and Allied and Coalition requirements by teaming with the war fighter, industry, and enterprise partners.

The mission is accomplished from the resources of four Electronic Systems Groups (ELSG) and one direct reporting division.

LINEAGE

51st Transport Wing Established, 30 May 1942
Activated, 1 Jun 1942
Redesignated 51st Troop Carrier Wing, 4 Jul 1942
Inactivated, 5 Jan 1948
Disestablished, 15 Jun 1983

551st Airborne Early Warning and Control Wing, established, 11 Oct 1954
Activated, 18 Dec 1954
Inactivated, 31 Dec 1969

51st Troop Carrier Wing and 551st Airborne Early Warning and Control Wing reestablished, consolidated and redesignated 551st Airborne Warning and Control Wing, 31 Jul 1985

Battle Management Systems Wing, established, 23 Nov 2004
Activated, 17 Dec 2004

551st Airborne Warning and Control Wing and Battle Management Systems Wing consolidated,
6 Apr 2006

Redesignated 551st Electronic Systems Wing, 17 Apr 2006

STATIONS

Pope Field, NC, 1 Jun-19 Jul 1942
Greenham Common, England, 4 Sep 1942
Tafaraoui, Algeria, 14 Nov 1942
Algiers, Algeria, 23 Nov 1942
La Senia, Algeria, 28 Mar 1943
Mascara, Algeria, 13 May 1943
Goubrine, Tunisia, 24 Jun 1943
Gela, Sicily, 29 Aug 1943
Catania, Sicily, 29 Sep 1943
Lido di Roma, Italy, 29 Jun 1944
Siena, Italy, 8 Jan 1945
Wiesbaden, Germany, 30 Aug 1945-5 Jan 1948
Otis AFB, MA, 18 Dec 1954-31 Dec 1969
Hanscom AFB, MA, 17 Dec 2004

ASSIGNMENTS

Air Transport (later, I Troop Carrier) Command, 1 Jun 1942
Eighth Air Force, 18 Aug 1942
Twelfth Air Force, 20 Oct 1942
XII Air Force Service Command, 5 Jan 1943
AAF Service Command, Mediterranean Theater of Operations, 15 Aug 1945
United States Air Forces in Europe, 31 Aug 1945-5 Jan 1948
8th Air Division (Airborne Early Warning and Control), 18 Dec 1954
Eastern Air Defense Force, 1 Jul 1957
26th Air Division (SAGE), 1 Jul 1959
First Air Force, 1 Apr 1966
21st Air Division; 4-31 Dec 1969
Electronic Systems Center, 17 Dec 2004

ATTACHEMENTS

XII Troop Carrier Command [Provisional], 21 Mar 1943-19 Feb 1944

IX Troop Carrier Command [Provisional], 16 Jul-c. 25 Aug 1944

WEAPON SYSTEMS

C-47, 1942-1947

C-53, 1942-1946

CG-4 gliders, 1943-1944

C-46, 1945-1946

C-109, 1945-1946

C-54, 1946-1947

C-121, 1955-1969

RC-121, 1955-1962

EC-121, 1963-1969

COMMANDERS

Col Russell L. Maughan, 1 Jun 1942

Col Paul L. Williams, 20 Oct 1942

Col Ralph B. Bagby, 22 Jan 1943

Col Ray A. Dunn, 25 Feb 1943

Col Samuel J. Davis, 25 Mar 1943

Col Ray A. Dunn, 18 May 1943

Col Samuel J. Davis, 10 Aug 1943

BG Ray A. Dunn, 9 Sep 1943

Col Samuel J. Davis, 18 Sep 1943

BG George H. Beverley, 28 Sep 1943

Col Timothy J. Manning, 20 Mar 1944

LTC Paul A. Jones, 3 Jun 1945

BG Lucas V. Beau, 4 Sep 1945

BG James F. Powell, 13 Aug 1947-5 Jan 1948

Col Oliver G. Cellini, 18 Dec 1954

Col Arthur A. McCartan, 20 Feb 1956

Col Richard W. DaVania, 17 Jul 1957

Col Ernest J. White Jr., Aug 1959

Col James A. Harwell, (by Jun) 1962

Col Rudolph B. Walters, 31 Jul 1962

Col Raymond K. Gallagher, 10 Aug 1964

Col Wright J. Sherrard, 14 Feb 1966

Col James P. Lyle, 1 Aug 1966

Col John M. Konosky, Mar 1967

Col Max W. Rogers, 10 Jun 1967

LTC Jesse M. Doyle, (by Jun) 1968

Col Max W. Rogers, (by Dec) 1968-31 Dec 1969

Col Gary S. Connor, 17 Dec 2004

BG Kenneth D. Merchant, Feb 2005

BG Dartanian Warr, 13 Jan 2006

HONORS

Service Streamers

None

Campaign Streamers

World War II

Rome-Arno

Naples-Foggia

North Apennines

Po Valley; Sicily

Tunisia

Armed Forces Expeditionary Streamers

None

Decorations

Air Force Outstanding Unit Award

1 Jul 1957-31 Oct 1958

EMBLEM



551st Airborne Early Warning and Control Wing emblem

551st Electronic Systems Wing emblem: Argent, two bends Sable, on a chief wavy Azure, a symbol of three radar pulses of the first; all within a diminished bordure Or. Attached below the shield, a White scroll edged with a narrow Yellow border and inscribed "551ST ELECTRONIC SYSTEMS WING" in Blue letters. **SIGNIFICANCE:** Ultramarine blue and Air Force yellow are the Air Force colors. Blue alludes to the sky, the primary theater of Air Force operations. Yellow refers to the sun and the

excellence required of Air Force personnel. The blue chief represents the sky where in the unit performs its mission. The radar pulse symbol and the wavy division signify electronic command and control over global environments. The five bands symbolize the complementary units bonded together to perform the mission. (Approved, 22 Dec 1955)

MOTTO

NICKNAME

OPERATIONS

Activated at Pope Field, NC, on 1 Jun 1942. Moved to England, Aug-Sep 1942, and trained for the invasion of North Africa. Operated with Twelfth Air Force in North Africa and the Mediterranean area from Nov 1942 to May 1945. Scheduled transportation of supplies, ammunition and personnel to the front. Directed paratroop and supply drops. Set up system of air evacuation of the wounded. In May 1943 added a training program for combat crews in night formations, glider towing, night navigation and over-water flights in preparation for the invasion of Sicily in Jul 1943. Later directed glider operations for the invasion of Italy in Sep 1943 and Southern France in Aug 1944. Lost all components and became non-operational in early Jun 1945. Moved to Germany in late Aug 1945 and provided the basis for creation of the European Air Transport Service (Provisional) which operated under USAFE to establish air routes and carry passengers and cargo throughout western Europe and the Mediterranean, 4 Sep 1945-20 Dec 1947. Wing inactivated 5 Jan 1948. The 551 AEW&C Wing activated in Dec 1954 and trained to perform airborne early warning and control operations within a specific air defense identification zone (ADIZ), extending radar coverage seaward beyond coverage provided by naval picket ships. Later added hurricane reporting and warning to the wing's missions. Became fully operational on 1 Jul 1956.

In the winter of 1953, a dozen officers and airmen arrived at McClellan AFB to initiate a new concept in national defense-airborne early warning and control. They formed the first AEW&C Squadron, the 4701st, and received their first RC-121 "Flying Radar Station" in December.

In May of 1954, 8th Air Division Headquarters, under the direction of Brigadier General Kenneth H. Gibson, was activated to organize, equip, and train an AEW&C Wing on each coast.

In January 1955, a huge plane somewhat resembling an airborne: shark flew across the United States from McClellan Air Force Base, California to Otis Air Force Base, Massachusetts.

At the controls of the huge radar surveillance aircraft was Colonel Oliver G. Cellini, the first commander of the newly formed 551st Airborne Early Warning and Control Wing at Otis. The plane was an RC-121D Super Constellation of the Air Defense Command and the first of many to be assigned to patrol the eastern seaboard.

With the completion of the Distant Early Warning (DEW Line) in 1958 the northern areas of the United States and Canada were well protected but both the Atlantic and Pacific Coasts were still vulnerable. Consequently, our radar warning networks were extended seaward at Otis AFB on the

east coast and McClellan AFB on the west coast by using the 551st and 552nd Airborne Early Warning and Control Wings respectively. Today, these wings supplement our radar detection system along the entire coastal lengths of the United States.

The 551st Wing at Otis is the only Air Force organization flying the EC-121H "Warning Star" Super Constellation known as Airborne long Range Input (ALRI) aircraft. This new integrated station on wings provides instantaneous automated relay of air defense surveillance and early warning information by data-link direct to ground based communication facilities. Then it is passed to high speed SAGE Air Defense Command and Control computers in East Coast SAGE Direction Centers and to the NORAD Combat Operations Center in Colorado Springs for air defense evaluation and action. ALRI permits more versatile airborne control of interceptor missile and aircraft weapons systems. This new ALRI system supplants the slower voice and manual Teletype data relay system previously employed by the RC-121D model of radar aircraft based at Otis.

The 551st Wing is composed of the 960th, 961st and 962nd Airborne Early Warning and Control Squadrons, who fly their continuous missions over the Atlantic Ocean 24 hours a day. The Wing has flown thousands of missions totaling more than 300,000 flying hours since January 1955 without a single accident involving personal injury or a fatality.

Perhaps the greatest advance in the wing operation was effected by the conversion, in the fall of 1963, of the RC-121 Warning Star aircraft to an EC-121 Version, using a high-speed computer communication system known as ALRI -- Airborne long-range Input. ALRI gear -- more than 6 tons of which is carried on board each EC_121 at Otis -- transmits radar surveillance information to SAGE centers along the eastern seaboard in fractions of seconds.

Aerial Revolution--During the 10 year that the 551st Airborne Early Warning Wing has operated out of Otis, the unit's primary mission aircraft -- a radar version of the Lockheed Constellation -- has evolved from a single humped RC-121C radar plane to the double-bulged-back EC-121H version which carries more than six tons of complex radar and computer communications equipment on each flight.

With the advent of thermonuclear weapons, the national security of the United States has depended greatly upon the Strategic Air Command's lead over the Soviet's ability to deliver these weapons to vital targets. Recently, this lead was seriously diminished as the Russians began replacing their outmoded B-29 type bombers with new high speed, long range weapons carriers comparable to those used by the U.S. Air Force. Realizing the increasing threat of Russian strategic airpower, the United States has been striving to improve its air defenses, especially the radar detection system upon which it relies for vital advance warning of an enemy attack.

The detection system has been extended by building chains of far-flung radar sites, ranging from the Pinetree radar line just north of the U.S.-Canadian border to the Distant Early Warning Line near the Arctic Circle. At sea, picket ships patrol specific areas in the North Atlantic and Pacific and 'Texas Towers,' or radar island, have been built on the coastal shelf off the eastern seaboard. Complementing this warning system is the 551st Airborne Early Warning and Control Wing.

RC-121 super Constellations, 'flying radar stations' built by Lockheed Aircraft Corporation, are utilized by the wing for its operations. The plane flies at a speed exceeding 285 miles per hour. Its maximum range exceeds 5,000 statute miles and it can remain aloft over 20 hours. The RC-121's are four engine Super Constellations, equipped with five and one-half tons of radio and radar equipment. Operated by specially trained crews of Air Force technicians several hundred miles at sea, these airplanes extend the Air Force Coastal Detection Zones to provide early warning of any possible attack on the United States. The RC-121 airborne radar search station and fighter-interceptor control center carries a maximum crew of 31 men, operates at altitudes up to 25,000 feet and flies at speeds up to 300 miles per hour. Since they remain on patrol over the ocean for extreme lengths of time, RC-121's are equipped with tip tanks which enable them to cover thousands of miles without refueling.

Initially, control of the fighter is the responsibility of the coastal radar station. When it moves into the range of the RC-121's radar, the airborne Intercept Director aboard the RC-121 assumes control of the fighter. On the radar screen, the Director charts the fighter's course and position. He speaks to the fighter pilot constantly by voice radio, giving him new ranges and courses at ten-second intervals, and instructs him as to altitude and speed of approach of the target.

Rapidly the target and fighter close, until the fighter pilot reports a 'Tallyho,' the word he uses to say he has sighted the target visually. If the 'Bogey' is an enemy, the fighter engages it in battle; if the aircraft is friendly, identification information is relayed to the appropriate channels on ground and disciplinary action is taken against the pilot of the 'Bogey.'

From takeoff to landing, the fighter-pilot is constantly under vigilance and control of radar personnel, either through the airborne or ground stations. Repeated checks are made of the fighter's fuel supply and Air-Sea rescue units are alerted when the jet fighter reaches the shoreline, to be available immediately in case of an emergency occurring over water. Thus, constant teamwork between both the fighter pilot and the airborne director is essential for the success of their respective missions. The Director is responsible for guiding the fighter to its prey and returning him to his home base before his fuel supply is depleted.

Before the airborne Director-Fighter team can go into action, every member of the numerous airborne crews must be thoroughly 'checked out' with the new RC-121 aircraft and equipment it carries. The Radar Controllers, Operators and Technicians can make use of their skills only when the Pilots, navigators, Engineers, and Radio Operators all know completely their jobs and responsibilities. This applies especially to the pilots designated as Aircraft Commanders who shoulder the responsibility for the safety of the aircraft and crew from the preflight briefing to the postflight physical conditioning exercises.

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Base officials indicated this week that an anniversary celebration for Otis based AEW&C Wing is in the planning stage. Included in the observances, spokesmen said, would be a get together for many of the former Wing Commanders here, along with a number of Lockheed Aircraft Corp. officials and ranking local civilian and military dignitaries.

Air Force Lineage and Honors

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Updated:

Sources

Air Force Historical Research Agency. U.S. Air Force. Maxwell AFB, AL.

The Institute of Heraldry. U.S. Army. Fort Belvoir, VA.

Air Force News. Air Force Public Affairs Agency.

Unit yearbook. *32nd Air Division. 1955.*