

OPERATION SUN-RUN

by Paul D. Stevens



Operation *Sun Run* featured Tactical Air Command RF-101Cs in the first supersonic round-trip, transcontinental flight from Los Angeles to New York and back on November 27, 1957. New west to east, east to west and round-trip speed records were established.

Lt. Gustav B. Klatt established an official west to east mark of 3 hours 7 minutes and 43.63 seconds, averaging 781.7409 mph. The previous mark of 3 hours 22 minutes and 50.05 seconds had been set by USMC Major John Glenn. Major Glenn's 15 July 1957 flight was made in a Chance Vought F8U-1 *Crusader* (Bu 143706) and his speed of 723.517 mph represented the first supersonic flight from Los Angeles to New York.

Capt. Robert M. Sweet flew to New York in 3 hours 10 minutes and 3.88 seconds, turned around and returned to California in a record 3 hours 36 minutes and 32.33 seconds, breaking the short-lived mark of Capt. Ray W. Schrecengost. Capt. Sweet's round-trip record of 6 hours 46 minutes and 36.21 seconds clipped 2 hours 44 minutes and 59.19 seconds from the old Navy mark (Douglas A3D-1 *Skywarrior*) and added some 208.357 mph in speed!

The RF-101s took off from Ontario International Airport and flew directly to Floyd Bennett Naval Air Station (2418.88 statute miles), approximately 27 miles short of the recognized courthouse-to-court-

house distance of 2445.90 statute miles. FAI officials adjusted airport-to-airport flying times upward to compensate for the variations, thus establishing official records. Ironically, the airport-to-airport records, which were FAI timed, were considered unofficial.

Operation *Sun Run* was originally conceived and proposed to the USAF by McDonnell Aircraft Corp., shortly after RF-101As became operational at Shaw AFB, S.C., during May of 1957. The USAF was celebrating its Golden Anniversary during 1957 and USAF officials were eager to demonstrate how far they had come in 50 years. Although RF-101As could have easily broken existing round-trip speed records with Boeing KB-50 tanker support, the speed record attempt was wisely delayed until Boeing KC-135A *Stratotankers* were available to support improved RF-101Cs. KC-135A tankers made it possible to safely refuel RF-101s at altitudes of 35,000 feet

First Lieutenant Gustav Klatt of San Marcos, Texas, takes off from Ontario Airport, Calif., during Operation *Sun Run* and established a new world speed record from Los Angeles to New York for the U.S. Air Force. Lt. Klatt made the flight in a McDonnell RF-101 *Voodoo* powered by two Pratt & Whitney J57 jet engines in 3 hours, 5 minutes, 39 2/10 seconds, breaking the old record established by the Navy of 3 hours 22 minutes, set in July 1957. (Official U.S. Air Force Photo)

and speeds of Mach 0.8 vs. 17,000–18,000 feet and 250 knots with KB-50 tankers. RF-101Cs had two significant advantages over the RF-101A relating to the record attempt. They carried approximately 1106 additional pounds of usable fuel in internal wing tanks and their only limit on afterburning time was fuel considerations. The use of RF-101A afterburners was restricted to equal periods of burning and non-burning (cooling) time for periods of up to six minutes. Anything over 6 minutes (10-minute maximum) required 10 minutes of cooling time.

USAF Chief of Staff, General Thomas D. White, and the Department of Defense formally approved Operation *Sun Run* on 10 September 1957. A preliminary planning conference was held at the Pentagon on September 19th to establish an operations plan and task force. By September 27th they had completed a preliminary Ops Plan (15-57) and it was disseminated in the form of TAC message TOOT-OW-91952.

Hq. USAF formally directed (Hq. USAF Message AFOOP-OC-B-2 30047, dated 4 October 1957) the Tactical Air Command to establish four F/RF-101 international speed records between 2 November and 31 December 1957. Operation *Sun Run* and *Fire Wall* (see AAHS, Vol. 23, No. 1) were given an unusual Mission Category II authorization for mission support.

Tactical Air Command Ops Plan 15-57 was formalized on 8 October 1957 and distributed to the 363rd Tactical Reconnaissance Wing at Shaw AFB, South Carolina, for implementation. Squadron pilots were elated to learn TAC had directed that "The most qualified unit pilots will be selected, regardless of rank." Most previous records had been made by test pilots or high-ranking officers from headquarters.

October of 1957 found only two squadrons (17th and 18th TRS) operating RF-101As and both were working hard with incomplete complements of aircraft during the transition from Republic RF-84Fs. A shortage of spare parts, low in-commission rates and runway repairs at Shaw AFB made the switch more difficult. High time pilots in the RF-101 had less than 100 hours in the airplane. Since the 17th TRS had received the first RF-101As, they had been previously chosen to make the first overseas deployment of F/RF-101s during November of 1957. (Operation *Mobile Zebra* to the Orient.) This left the 18th TRS available and very eager to perform Operation *Sun Run*.

Major Stanley R. Sebring was the 18th TRS commanding officer and he became the Operation *Sun Run* operations officer. Lt. Col. William H. Nelson, a 9th Air Force staff officer, became the *Sun Run* project officer. They basically served in the support capacity of providing accommodations, maintenance, logistics, tanker support and coordinating hundreds of subjects with agencies and organizations too numerous to mention.

Per TAC Ops Plan 15-57, Major Sebring selected three pilots from each squadron to participate in Operation *Sun Run*. They were: Capt. Robert E. Burkhart (18 TRS), Capt. Donald D. Hawkins (17 TRS), Capt. Robert J. Kilpatrick (17 TRS), Lt. Gustav B. Klatt (18 TRS), Capt. Ray W. Schrecengost (18 TRS), and Capt. Robert M. Sweet (17 TRS).

Capt. Robert E. Burkhart was born in Alliance, Ohio, on 16 January 1926. He was commissioned June 23, 1951, and flew 100 combat missions over Korea in RF-80s and RF-86s.

Capt. Donald D. Hawkins was born 23 December 1923 and is originally from Alhambra, California. During World War II he was shot down (P-51) over Austria after 23 combat missions and finished the war as a POW. Capt. Hawkins returned to flying status during 1952 and flew interceptors at Thule, Greenland, before joining the 17th.

Capt. Robert J. Kilpatrick was born to Mr. and Mrs. Arthur S. Kilpatrick of Bristol, Connecticut, during 1925. He was released from the Naval Aviation Cadet program during WWII after officials

discovered he was only 17. Capt. Kilpatrick joined the Coast Guard and served one tour of anti-submarine duty in the Atlantic before going to the Pacific. He graduated from flying school during March of 1950 (Class 50-A) and flew 167 T-6 "Mosquito" missions in Korea.

Lt. Gustav B. Klatt of San Marcus, Texas, was the youngest (29) pilot associated with *Sun Run*. He had flown one tour of duty in Germany before joining the 18th at Shaw AFB during 1956.

Capt. Ray W. Schrecengost was born in Ohio during 1926 but fondly remembers growing up in Kittanning, Pennsylvania. World War II ended before he could graduate from the aviation cadet program but he was in one of the first classes at Randolph AFB, Texas, when the program reopened in 1947. During 1948 he was in the first class of students to fly the Lockheed F-80 at Williams AFB, Arizona. Capt. Schrecengost was also in the first group of 12 replacement pilots sent to Korea and ended up with 104 RF-80 combat missions. His post-Korea duties included another tour in RF-80s and strategic RB-45/RB-66 types before returning to Shaw in 1957.

Capt. Robert M. Sweet was born to farm parents during 1927 and grew up in the area of Barronett, Wisconsin. He graduated from the cadet program at Reese AFB during May of 1950 (Class 50-B) and was en route to Guam for an assignment flying B-29s with the 19th Bomb Group when the Korean War started. The 19th left Guam before Capt. Sweet arrived and he was subsequently diverted to Korea where he flew a combat tour in T-6s. Capt. Sweet also flew RF-51s with the 45th TRS and had checked out in T-33s and RF-80s before returning to the United States. He was the only unmarried pilot to participate in *Sun Run* and was nicknamed "Marmaduke" by many of his flying friends.

Major Stanley R. Sebring flew 33 combat missions during WWII and 104 more in RF-80s over Korea. The veteran race pilot was originally from Beverly Hills, California.

Operation *Sun Run* derived its name from the desire of planners to see RF-101s match the sun time from Los Angeles to New York and return. The sun time was approximately 6 hours and would have required flying to New York in 2 hours 40 minutes, or less, and returning to Los Angeles in 3 hours and 20 minutes to achieve the desired round-trip times.

Operation *Sun Run* was a relatively large and complex exercise requiring exact timing and extensive coordination with supporting units from coast to coast. TAC planners were quite adept at coordinating military affairs but they lacked the F-101 expertise to establish the maximum performance profiles required for record runs. TAC had been operating the RF-101 for only a few months when *Sun Run* was conceived. (Capt. Schrecengost checked out during August!)



OPERATION SUN FLIGHT CREWS. Left to right: Capt. Robert J. Kilpatrick, Capt. Donald D. Hawkins, Capt. Ray W. Schrecengost, Major Stanley R. Sebring, Capt. Robert M. Sweet, 1st Lt. Gustav B. Klatt, and Capt. Robert E. Burkhart.



The RF-101 "book" was incomplete because a number of F-101 performance tests were never conducted for various reasons.

Consequently, McDonnell Aircraft Corp. (MAC AIR to the pilots) used their computers and flight testing experience to provide optimum climb-and-cruise profiles. Their project officer was Mr. Robert C. "Bob" Little, the original F-101 test pilot, and probably the most knowledgeable F-101 pilot available.

McDonnell actually developed several basic *Sun Run* profiles and one of their primary objectives at the first of two planning conferences conducted at MAC AIR was to determine which one best served everyone involved. Project officers representing Headquarters USAF, Tactical Air Command, Strategic Air Command, Air Defense Command, Air Weather Service, Air Materiel Command, Air Research & Development Command, Air Proving Ground Command, Pratt & Whitney and McDonnell attended the early October meeting. Major Sebring and Capt. Schrecengost represented the RF-101 cadre.

The basic *Sun Run* profile to evolve from MAC AIR called for two cells of three RF-101Cs launching one hour apart. Each cell consisted of a round-trip pilot taking off five minutes ahead of the one-way pilot who was in turn followed by a spare fifteen minutes later. The spare was to fill in for either primary pilot who might be forced to abort. He would take on 6,000 pounds of fuel from the first tanker and land at March AFB, California, if not needed.

McDonnell's flight profile called for each pilot to make a maximum power afterburner takeoff and climb out from Ontario International Airport. They would level off at 45,000 feet and accelerate to near maximum speeds before throttling back to minimum continuous afterburning which would keep them supersonic. They would stay at 45,000 feet and allow Mach to build up gradually as their fuel load burned off. Afterburning used fuel at a rate approximately four times higher than military power. Consequently, the one-way airplanes required four inflight refuelings to reach New York and round-trip airplanes required an additional four refuelings to reach Ontario IAP with enough fuel to recover at March AFB, California.

Four 100-mile-long refueling tracks were established for the west to east flights. The first refueling track started 384 nautical miles east of Ontario IAP, the second was 901n miles out, third 1418n miles away and the fourth started 1935n miles east of Ontario IAP and ended 2035n miles east, 68n miles short of NAS Floyd Bennett.

This refueling profile gave the one-way pilots an advantage over their round-trip compatriots in the race to Floyd Bennett. They needed only enough fuel from the fourth tanker to cross NAS Floyd Bennett below 500 feet, an FAI requirement for speed and ID checks, and recover at nearby McGuire AFB, New Jersey. The round-trip pilots returning to Ontario had to take on a full load of fuel and

Lt. Klatt's 56-165 would have been the choice of most *Sun Run* pilots because it had the best maintenance record and a reputation among the pilots for being a good flyer. This McDonnell photo was apparently taken after the race when the pilots visited McDonnell. Only Lt. Klatt and Capt. Sweet flew their RF-101s in but all were wined and dined by McDonnell.



Each pilot prepared his own maps and practiced for a round-trip mission. Capt. Ray W. Schrecengost is shown marking the radius of responsibility for individual radar sites along his route. ADC radar sites provided valuable flight monitoring, assisted with air refueling rendezvous, help with navigation and were prepared to help with emergency situations. The 1957 era RF-101s were short on navigation equipment and radio failures were not uncommon.
(Photo from Col. Ray W. Schrecengost Collection)

stay with the tanker for 100 miles. They also had to cross Floyd Bennett below 500 feet, turn around and make a heavy weight climbout to 45,000 feet and continue on.

The four westbound refuelings differed only in that the refueling tracks were 80 miles long versus 100. The first westbound refueling (No. 5) was 323n miles west of Floyd Bennett. The sixth, seventh and eighth refueling points were 364n miles apart and it was 368n miles from the last refueling dropoff point to Ontario IAP. An

anticipated 40-knot west-to-east tailwind and 40-knot east-to-west headwinds accounted for the variations in refueling tracks. The refueling points and tracks were something of a compromise, based on the number of tankers available, and how to best utilize those available. The one-hour interval between takeoff times of RF-101s in the first and second cells permitted tankers at the first three refueling stations to reposition so that they could refuel westbound RF-101s at station numbers 8, 7 and 6 respectively.

Inflight refuelings were scheduled for 35,000 feet at a speed of Mach 0.8. Each competitor would rendezvous, top off their fuel, burner-climb to 45,000 feet and go supersonic before returning to the tanker and starting the cycle all over again.

It was during one of these early supersonic runs that the great "boom" caper took place. Captains Hawkins and Kilpatrick had finished refueling and had made a supersonic run on a northwesterly track over the San Gabriel Mountains from the area of Joshua Tree to Wheeler Springs. Unfortunately, their tanker had strayed off course to the west and visibility was limited in the haze and smog/fog around Los Angeles. They created a wider band of shock waves and supersonic booms than anyone had anticipated, getting the undivided attention of many thousands in the densely populated area north of Los Angeles. Some minor damage was caused and the incident made front-page news.

As luck would have it, an investigation team ate breakfast next to the intrepid "boomers" on the following morning as they were musing over the incident. Surprisingly, the *Sun Run* pilots were never queried about the incident and the Navy was given temporary credit for the caper. Their air refueling track and supersonic runs were quickly diverted toward Death Valley and the complaints diminished.

As the pilots became more proficient at air refuelings and making supersonic dashes at 45,000 feet it became apparent that their aircraft were not regularly performing up to McDonnell profile expectations. Significant day-to-day variations in maximum speed and fuel flows were observed by each of the pilots. The highly competitive pilots began to develop opinions that some airplanes outperformed others and that some pilots were not completely honest when relating their experiences. Unfortunately, two elements helped exaggerate these anxieties. Aircraft availability did not permit pilots to fly the same airplane on a daily basis and RF-101s did not have an outside temperature gauge. The pilots had no way of knowing how

much of the daily performance variations were due to temperature fluctuations. A 1°C decrease in temperature would increase speeds by 3 to 5 knots.

Major Sebring and Capt. Schrecengost attended the second and last McDonnell planning conference in St. Louis on October 23rd. Capt. Schrecengost returned to George AFB on the 24th with their first RF-101C (56-165). No new information about the basic *Sun Run* profile came out of this meeting.

Pilots from the 17th began to question portions of the *Sun Run* flight profile and went about developing their own. Capt. Hawkins devised a form which each of the 17th pilots carried and used to document aircraft performance. Capt. Kilpatrick consulted with an old buddy flying F-100s (using similar J57 engines) and learned some of the advanced cruise control methods employed by F-100 units. He discovered they were using specific fuel flow rates as a guide for drift climbing and cruise control. The F-100 units had approximately two more years of experience with J57-powered airplanes than did the Shaw airmen. Capt. Kilpatrick began experimenting with his performance notes and came up with a slightly different profile than that published by MAC AIR. His profile called for accelerating supersonic in the area of 38,000-39,000 feet and drift climbing to 45,000 feet while maintaining a constant fuel flow rate of approximately 22,400 pounds per hour. The validity of his theory seemed to be proven during a practice mission to Kansas City and return when he easily outdistanced two associates and nearly matched the original McDonnell speed profile. The pilots were all astute competitors and each developed their own theories on how to make the RF-101 go farther and faster.

Another Headquarters USAF directed mission, Operation *Long Legs*, delayed the start of Operation *Sun Run*. Operation *Long Legs* consisted of extensive USAF participation in Argentina's annual Aeronautics Week. General Curtiss E. LeMay led a delegation of seven KC-135A tankers to Buenos Aires, and established world class speed records doing so. General LeMay flew from Westover AFB, Mass., to Buenos Aires, a distance of 6,322.85 miles, in 13 hours, 2 minutes and 51 seconds during 11-12 November. This delay was

The six *Sun Run* RF-101s were adorned with two distinctive types of markings and three different colors for easy identification by FAI officials. Aircraft No. 1 (56-163 Yellow), No. 2 (56-164 Blue) and No. 3 (56-165 Red) carried identical marking schemes. This McDonnell photo of 56-164 was taken at George AFB shortly before the move to Ontario IAP.



anticipated during October and several *Sun Run* pilots returned to Shaw AFB for a brief visit with their families during the lull. During their flight back to George AFB, they overheard radio transmissions from returning KC-135s and ended up making an unscheduled air refueling en route!

Approximately one week before *Sun Run* was conducted each of the six pilots was scheduled to make a practice mission to Kansas City and return. The Kansas City dress rehearsal was a maximum-performance mission approximating a one-way flight to New York. Captains Burkhart, Hawkins and Kilpatrick made an uneventful mission with Kilpatrick, using his modified profile, turning in the best elapsed time.

The November 20th practice mission of Captain Schrecengost, Capt. Sweet and Lt. Klatt nearly ended in disaster due to a communications and coordination foul-up. Their first tanker was out of position and the second one aborted! Capt. Schrecengost was unable to rendezvous with the first tanker and landed at Kirtland AFB, N.M., virtually out of fuel. Capt. Sweet successfully refueled but quickly returned to George AFB when he learned the second tanker had aborted. Lt. Klatt found the tanker but was unable to take on any fuel. He couldn't make Kirtland and made a landing at Gallup, New Mexico, that is discussed during hangar bull sessions to this day. Lt. Klatt exercised outstanding pilotage to safely land on Gallup's high (elevation 6469 feet) 100 x 5040 foot runway. One of his engines actually flamed out due to fuel starvation while he was taxiing up to the hardstand. Lt. Klatt was met by the airport manager, Mr. D.B. Clarke, who wanted to know what he was doing there and why he hadn't called in. After an explanation, Mr. Clarke congratulated Lt. Klatt on being the first jet pilot to successfully land at Gallup and provided him with a stiff drink. Two T-33 aircraft had been damaged in previous landing attempts. Fortunately, Lt. Klatt had been flying a new RF-101C with non-skid brakes. The incident created quite a stir in and around Gallup. Literally hundreds of people came out to examine the RF-101C (56-168) as Lt. Klatt waited for a fuel tanker and starter unit to arrive from Kirtland AFB. More than a few watched as Lt. Klatt took off at 10:44 P.M. "with room to spare."

The second through seventh production RF-101Cs (56-163 through 56-168) were allocated to Operation *Sun Run*, painted with special markings for easy identification and thoroughly checked out by McDonnell technicians. Since McDonnell was primarily a Navy contractor, F-101s were accepted by Navy flight crews! Although Capts. Burkhart and Schrecengost picked up *Sun Run* RF-101Cs at MAC AIR, most of them were ferried out to George by Shaw airmen who returned with 18th RF-101As. Three aircraft were delivered during October: 56-165 (10/24), 56-164 (10/28), 56-166 (10/29) and three during November: 56-163 (11/10), 56-167 (11/12) and finally 56-168 (11/15). In addition to previously mentioned improvements over the RF-101A, RF-101Cs had revised fuel systems and were stressed for heavier flight loads (G).

With all six RF-101Cs in place at George AFB and the pilots as ready to go as they would ever be, Operation *Sun Run* was scheduled for Wednesday, November 27, 1957. After approximately six weeks of practice flying out of George AFB, all activities were shifted to Ontario International Airport. Ontario was a welcome change from George where airmen and officers had been provided with spartan accommodations and facilities.

The most difficult part of *Sun Run* for Major Sebring was to select pilots and airplanes for each mission. Each of the six pilots was highly qualified and perfectly capable of performing any of the missions. The pilots were given an opportunity to specify their choices but they voted straight party lines and Major Sebring made the final decisions. His choices were made known on Monday, November 25th. Capt. Schrecengost was scheduled to make the first round-trip bid with Capt. Kilpatrick flying the initial one way and Capt. Hawkins serving as their backup. They would be followed by Capt. Sweet (round trip), Lt. Klatt (one way), and Capt. Burkhart (spare).

Tuesday was spent making final plans and fully servicing the RF-101s. Inflight refueling equipment and fuel system valves were



Capt. Ray W. Schrecengost's *Cin-Min* as seen in the fog at Ontario IAP minutes before the race to New York and back began. *Sun Run* pilots were encouraged to mark or name their airplanes. Capt. Schrecengost named his airplane after daughters Cindy and Mindy. (USAF Photo)

given particular attention because they had caused problems and were the key to success or failure of the record attempts. The RF-101Cs were carefully towed out to the runway threshold and lined up in the same sequence they would be taking off in. Each pilot personally "bedded down" their respective airplane and anxiously awaited morning. For most of them, it was a restless night with little sleep. The pilots were not provided with a flight surgeon to give them a sleep-inducing sedative. Their anxiety was only fueled by General Stephen B. Mack's visit "to see his boys off and wish them well." General Mack was the 363rd TRWing CO and Shaw AFB commander. He was a fine old gentleman and officer but the pilots wanted to blow their horns *after* the ink was dry on their records—not before.

Dawn of Wednesday, November 27, 1957, brought a flurry of activity at Ontario IAP. Maintenance men were checking and double-checking their equipment and aircraft in anticipation. The pilots were given a very short weather briefing and were delighted to learn everything was set to go as scheduled. Although the visibility at Ontario was down to a mile in fog, New York was clear. Generally, the west was clear with visibility from 15 to 45 miles while most of the eastern half of the country was covered with high clouds. Visibility was in the range of 5 to 12 miles at emergency recovery bases in the east, well within established standards.

Capt. Ray W. Schrecengost blasted off from Ontario IAP at 0659.57 4/5 after a ground roll of 2300 feet and headed for Raton OMNI on a heading of 058 degrees. *Sun Run* navigation was a combination of pilotage and DR (dead reckoning) with position reports and assists from Air Defense Command GCI/GCA sites. Each pilot marked his maps with a multitude of data relating to headings, profile fuel data, distances to each tanker, call signs, tanker tracks, VOR navigation data, etc.

Capt. Schrecengost soon noted his airplane wasn't accelerating as rapidly as desired and didn't even want to go supersonic. Warmer than expected temperatures and light winds were holding him back and his fuel was burning at an alarming rate. His 1106 pounds of wing fuel wouldn't feed, compounding his problems. The RF-101C would not maintain supersonic flight at 45,000 feet with military power. He opted to continue the mission by drift climbing to the area of 49,000 feet to save fuel and stay in burner, sacrificing speed for fuel. The only way he could hope to stay competitive was to reduce his fuel reserve at each ARP (air refueling point) by the 1106 pounds he was carrying but couldn't use. His first refueling went well over north-central New Mexico and a heading of 056 was taken at Raton OMNI. The second air refueling track was from Jetmoore to McPherson, Kansas, and his times began to improve. The third east-bound refueling track ran from north of Decatur, Illinois, to the area of Clark Hills, Indiana.

Capt. Schrecengost reported "fairly screaming" across Ohio and Pennsylvania, attaining ground speeds of up to 980 mph at one



Col. Sweet contends refueling from the KC-135 was like "taking candy from a baby" after refueling from KB-50Ds. (Photo by Robert Burgess)

point. He was the first of several pilots to encounter refueling problems over the fourth and last track extending from southeast of Philipsburg to Allentown, Pennsylvania. A combination of poor radar, inexperienced controllers and clouds nearly put Capt. Schrecengost down. He had only 300 pounds of usable fuel on board when he plugged into the tanker! He crossed over Floyd Bennett at 1013.29 2/10, breaking Major Glenn's previous record, and headed west toward Ontario. The westbound profile was quite similar to the eastbound track. The refueling tracks were shifted to the west by approximately 100 miles and reduced in length to 80 miles.

Capt. Schrecengost's return flight to Ontario was made without incident, following the basic MAC AIR profile and fuel-saving modifications he had used en route to New York. Capt. Schrecengost crossed Ontario IAP at 1412.15 4/5 with a new record, but one which he knew would soon be broken by Capt. Sweet. According to plan, he flew over to March AFB, California, did a victory roll or two, and landed. Col. Schrecengost still remembers the thrill of having a large crowd greet him at March AFB. Ironically, a plugged hydraulic valve created nosewheel steering problems and he nearly taxied into some of the well wishers while negotiating a sharp turn. He was greeted by General Mack and a mob of reporters and television people. The latter quickly abandoned him once they learned their "bride" would soon become a bridesmaid. Capt. Schrecengost was a "pretty beat" but happy aviator. He had helped plan and execute three speed records.

Capt. Robert J. Kilpatrick received bad news when he arrived at his airplane. The line chief, M/Sgt. James W. Cooley, reported that the crew chief had found the air refueling receptacle doors on his airplane cracked open and wanted to delay Kilpatrick's takeoff until they could recheck the system. Capt. Kilpatrick was afraid this would create an abort situation and ordered Sgt. Cooley off his airplane so he could take off. Sgt. Cooley insisted but abandoned the argument after one engine had been started and watched Capt. Kilpatrick take off as scheduled at 0705.29 3/10. Capt. Kilpatrick climbed at a faster than profile speed, went supersonic in the area of 38,000–39,000 feet and drift climbed to 44,000 or 45,000 feet.

All went well until he tried to refuel at the first tanker station. The boom operator couldn't get the boom to lock into the refueling receptacle. Finally, in desperation, the boom operator manually force-fed Capt. Kilpatrick 18,000 pounds of fuel by using maximum pumping pressure. Unfortunately, he, like Capt. Schrecengost, lost the use of his wing tanks and was able to take on only about 10,300 pounds of fuel. The remainder had been spilled overboard. Tankers at the remaining three stations were alerted to his problems and were advised how to refuel Capt. Kilpatrick.

Capt. Kilpatrick decided to stay with his original profile, even though he would be about 4,300 pounds of fuel short after each subsequent refueling. Due to the fact that it took him longer to refuel, Capt. Kilpatrick abandoned the practice of staying with the

tanker for 100 miles. He simply refueled and blasted away from the tanker, climbing to 38,000–39,000 feet, going supersonic and drift climbing to 47,000 feet in order to stay close to the fuel profile.

Capt. Kilpatrick lost more time and fuel when he had to descend to 14,000 feet for a rendezvous below clouds during his third refueling. This hookup was performed perfectly with the aid of radar control. The boom operator commented to Capt. Kilpatrick during the refueling that he looked like "Old Faithful" with fuel coming out everywhere. Almost one-half of the fuel off-loaded for Capt. Kilpatrick was spilled on, over, through and around his RF-101C. It was not a serious fire hazard but the fuel was wasted. The radar site controlling the refueling rendezvous over Pennsylvania lost contact with Capt. Kilpatrick and the tanker! He made radio contact with the tanker and used VHF direction, finding equipment (ARA-25) to locate the tanker.

Capt. Kilpatrick took on about 8,000 pounds of fuel and immediately noted he was south of track—and close to the New Jersey coastline. He lit the burners, rolled over dove north toward New York indicating about 600 knots at 20,000 feet. He throttled back, for fear of over-stressing the airplane, slowed down in a high G starboard turn and rolled out lining up on NAS Floyd Bennett. He then lit the burners and screamed across Floyd Bennett indicating 600 knots. A very frustrated and angry pilot, Capt. Kilpatrick flew to the designated recovery base of McGuire AFB, New Jersey, and landed. He was greeted by TAC commander, General O.P. Weyland, and a host of news media people. Like Capt. Schrecengost, he soon became a bridesmaid and his disappointment over the damaged refueling receptacle remains to this day.

Capt. Donald D. Hawkins took off from Ontario IAP, as a spare, at 0719.15 4/5 and had the best time of all participants to the first tanker. Although Capt. Schrecengost and Capt. Kilpatrick might well have been justified in aborting, that competitive edge that had resulted in their selection as primary pilots prevailed and he was not given an opportunity to compete. Capt. Hawkins was possibly the most technically astute pilot of the group and played an important role in helping develop the 17th profile which was used by Captains Kilpatrick and Sweet.

Capt. Robert M. Sweet of the 17th had drawn the proverbial "hangar queen," 56-163 for his ride. It had never made a flight without write-ups, and in fact it had been written up for a stuck fuel valve on the short hop from George to Ontario. As the crew chief helped Capt. Sweet strap in, he commented something to the effect that with all the trouble it had had, perhaps this was the time for her to go. Go, she did. He got off at 0750.38 7/10 and experienced the same "disastrous" first leg the others had encountered. The first ARP was 384n miles from Ontario IAP. He was more than 2,000 pounds below the fuel curve while still 175 miles from the tanker.

Capt. Sweet climbed to 48,000–49,000 feet for cruising and came out of burner prematurely to stretch his fuel. Capt. Sweet's logic was to go supersonic at 35,000 feet and climb to 45,000 feet at a shallower angle than McDonnell's profile called for. He then drift-climbed to 48,000–49,000 feet and started arriving at the next tanker within 500 to 600 pounds of the fuel curve. His pace picked up over Kansas and the only incident of his trip occurred shortly after the third refueling over Illinois and Indiana. An alert radar controller noted he was tracking 20 degrees off course and questioned his navigation. As it turned out, his compass transmitter had been replaced a few days previously and it had failed. A switch to the standby compass alleviated his only mechanical problem of the day. Capt. Sweet reported his airplane "ran like a jewel" and he encountered no refueling problems.

During the trip back to Ontario he overheard radio conversations between radar controllers and Capt. Schrecengost indicating he was making much better time than Capt. Schrecengost. Like Capt. Schrecengost, Capt. Sweet flew into the sun during his flight back to Ontario and both pilots reported it was a very tiring experience, especially during refuelings. Capt. Sweet knew he had the race won by the time he hit the last tanker and elected to stay hooked up for the full 80 miles rather than to disconnect and chance hooking up a



second time to top off.

His next big concern was to find Ontario IAP in the afternoon haze and smog (2.5-mile visibility). He started slowing down about 50 miles east of Ontario and used his DF equipment to home-in on a transmitter that had been set up on the airport for that very purpose. Capt. Sweet estimates he was doing less than 300 knots when he crossed the finish line at 1432.45 2/10, more than 30 minutes faster than Capt. Schrecengost. He flew over to March AFB, did a few rolls and landed. The champ was greeted by General Mack, Capt. Schrecengost and a mob of news media types.

Capt. Sweet reportedly had the mission "locked in." He made textbook refuelings, flew a steady race, and apparently did not push his fuel reserves beyond profile levels.

Lt. Gustav B. Klatt was the last competitor off at 0756.38 and least, in that it took him less time to reach New York than anyone else. He followed the basic McDonnell profile but stayed in burner longer (by approximately 600 pounds of fuel on each leg) and climbed to 46,200 feet on the third leg. Lt. Klatt's fourth tanker was too far down track which resulted in a short tail chase. He had the tanker do two 180-degree turns and plugged in with less than 500 pounds of fuel remaining.

One of the most important controller functions was to ensure good tanker placement to prevent such tail chases. The RF-101C would remain supersonic for a long time on military power during the gradual descents from high cruising altitudes but it would decelerate to a sustained Mach .92 in level flight at 35,000 feet. Although an overtake speed of Mach .12 is substantial, most of the pilots were pushing their fuel reserves and could ill afford a tail chase with their tankers. Controllers in the west had practiced rendezvous procedures during the dress rehearsal missions to Kansas City but those in the east had had no opportunities to practice. Their first experience was at the expense of pilots in the first element (Schrecengost and Kilpatrick) which was to the advantage of pilots flying the second element (Sweet and Klatt). Most of the practice air refueling hook-ups with Air Research & Development Command KC-135 tankers out of Edwards AFB had been set up over California by the receiver pilots using their ARA-25s.

A communications breakdown on the ground in Pennsylvania cost Lt. Klatt some precious time and Capt. Sweet an opportunity to reach New York in three hours, or less. The primary objective of *Sun Run* was a one-way record to New York in less than three hours. It was a foregone conclusion they could easily establish new east-to-west and round-trip records.

TAC officers at the Movement Control Center noted Capt. Sweet was making the best time to Pennsylvania. They were satisfied he had sufficient fuel to make NAS Floyd Bennett in less than three

Aircraft No. 4 (56-166 Yellow) and No. 6 (56-168 Red) were marked as per No. 5 (56-167 Blue) as seen by Vic Seely of Castle Graphics. Photo No. A9081. All special *Sun Run* markings, save "SUN RUN," were quickly removed after their return to Shaw AFB, S.C.



Capt. Schrecengost's 56-166 logged 6,604.9 hours with recce units around the world before retiring to the Air Force Museum at 11:54 on 27 October 1978. Capt. James H. Neil of the Mississippi Air Guard watches Joe Skinner sign for the old bird as Paul Lake (left) and Harold Longberry (right) stand by. (David W. Menard Photo)



Capt. Sweet's 56-163 was one of several RF-101s which were salvaged by Ling Temco Vought after irreversible corrosion was discovered. The salty air at Misawa AB, Japan, and Kadena, AB, Okinawa, was worse than the hot and humid conditions encountered in southeast Asia. (Photo by Jim Sullivan)



hours without the fourth refueling and decided to have him switch missions with Lt. Klatt. Capt. Sweet was to land at NAS Floyd Bennett while Lt. Klatt took on a full load of fuel and headed back to California. Unfortunately, a telephone operator accidentally disconnected MCC officers who were communicating their decision to radar controllers in Pennsylvania. During the confusion which followed, only Lt. Klatt was notified of the switch in plans.

While taking on fuel, Lt. Klatt realized Capt. Sweet had not received the "word" to switch missions and was already heading west. Since no provisions had been made for more than two round-trip participants, Lt. Klatt's only option was to complete his scheduled one-way mission to New York. By then he had been on the tanker for several minutes and had taken on more fuel than he needed. Lt. Klatt quickly disconnected from the tanker and was accelerating at 37,000 feet when a check of the maps revealed he was farther east than expected, right on top of Manhattan. Lt. Klatt rocked downtown Manhattan with sonic booms during his high "G" pullout at low altitude and crossed NAS Floyd Bennett at a very high rate of speed. His time to New York was 2 minutes and 16.7 seconds faster than anyone else (Capt. Sweet).

The Movement Control Center consisted of Col. W.G. Benz, Jr., and Capt. Cooper from the Ninth Air Force Command Post, both of whom were fighter types. They were aided by Lt. Jonathan Gardner and Lt. William H. "Willie" Gardenhire who were undergoing RF-101 transition training at Shaw AFB. They were provided with the full range of Air Defense Command radar and communications facilities available at Ent AFB, Colorado. Colonel Benz was apparently the final authority on all matters involving air operations during the actual conduct of Operation *Sun Run*.

Lt. Klatt flew back to McGuire, performed the customary victory rolls, landed and met the press. Lt. Klatt and Capt. Kilpatrick were subsequently flown to La Guardia and taxied to the Mutual Broadcasting Studios in Manhattan for guest appearances on national television. They emerged from the MBS studios into peak rush-hour traffic and were unable to catch a taxi for a ride to their Park Avenue hotel. Capt. Kilpatrick was familiar with the area and both pilots walked the mile or more across Manhattan in their bright orange flying suits. Capt. Kilpatrick still remembers walking across Manhattan in the crisp autumn air and the three news media representatives that followed them. Much to the chagrin of USAF aides assigned to *Sun Run*, one of the New York papers carried a big human interest story the following morning on how these two record-breaking pilots could fly across the country and then walk across town to their hotel.

Capt. Robert E. Burkhart was the last *Sun Run* pilot to depart Ontario IAP at 0811.12 2/5. He raced to the first tanker and took on enough fuel (6,000 pounds) to make the long and lonesome trip back to March AFB after learning his services weren't required.

Operation *Sun Run* was a large and complex mission which was well planned and executed by airmen pushing their skills and aircraft to, and perhaps beyond, realistic limits. Each of the participants strongly felt they could have done "considerably better" if given another opportunity. A three-hour west-to-east sprint was undoubtedly attainable but a six-hour round trip was probably out of reach

Capt. R.M. Sweet of Barronett, Wisc., performs a "combat approach" to March Air Force Base, Calif., preparatory to landing after he had successfully broken the speed run from New York to Los Angeles. And in addition he set a new round-trip record from Los Angeles to New York and return. Capt. Sweet flew from New York to Los Angeles in a McDonnell RF-101 powered by two Pratt & Whitney J57 jet engines in 3 hours, 34 minutes, 8 8/10 seconds, and his round trip consumed 6 hours, 42 minutes, 6 7/10 seconds. (Official U.S. Air Force Photo)

for the RF-101C.

The RF-101C was a good choice for Operation *Sun Run*. Her primary attributes were speed and range. She gave a "Cadillac" ride at supersonic speeds, regardless of altitude, and the faster she went, the better she handled. Her primary fault for *Sun Run* was probably the lack of a satisfactory autopilot. They were limited to Mach 0.95 by the "book" and most pilots did not trust RF-101 autopilots in 1957 anyway. Every minute of *Sun Run* was hand flown by some very busy recte pilots. The only chance they had to "relax" was during the brief period between the initial refueling and subsequent top-off, possibly three to five minutes per leg.

The *Sun Run* RF-101Cs were standard production airplanes as delivered by McDonnell. The engines were tuned per Pratt & Whitney specifications for operational service aircraft. The only modifications made to the airplanes was to wire the fuel transfer pumps so that the pumps would operate automatically during afterburner operations. This was primarily a safety feature. Each airplane carried a barograph as required by the FAI. They were flown back to Shaw AFB, S.C., after the conclusion of Operation *Sun Run* and placed in service without so much as a special maintenance inspection.

Lady Luck did not take kindly to the six speedsters. Only one, 56-166 (Capt. Schrecengost's CIN-MIN), survived operational service. After 6,604.9 hours and hundreds of combat missions, she found a retirement home in the Air Force Museum, thanks to this author! Three were lost in accidents: 56-164, 167 and 168; 163 died of cancer while 165 and her pilot were lost in southeast Asia. Most of them saw extensive combat duty in SEA.

The *Sun Run* pilots were decorated, given a great deal of media attention and extensively wined and dined. President Eisenhower's heart attacks and ill health, the Russian launching of Sputnik I, world political hot spots and concern for the economy, quickly diverted media attention and Operation *Sun Run* soon faded into oblivion. *Sun Run* had a positive effect on all of the pilots involved and each continued their USAF careers. Capt. Kilpatrick elected to retire as a major after 20 years of service while commanding an ADC F-101 squadron. Robert Burkhart, Donald Hawkins, Gus Klatt, Ray Schrecengost, Stanley Sebring and Robert Sweet have retired as full colonels after distinguished careers. They are now pursuing second careers with the same vigor that would have made them highly successful even without Operation *Sun Run*.

A great deal of Operation *Sun Run*'s success can be directly attributed to KC-135 tanker support. Most *Sun Run* practice missions were supported by Air Research & Development Command tankers undergoing tests at Edwards AFB because SAC KC-135 aircrew transition training had been given a very high priority. SAC provided 10

Operation SUN RUN	SUPERIOR ALPHA	SUPERIOR BRAVO	SUPERIOR COCOA	SUPERIOR DELTA	SUPERIOR ECHO	SUPERIOR FOX
Pilot	Capt. Ray Schrecengost	Capt. Robert Kilpatrick	Capt. Donald Hawkins	Capt. Robert Sweet	Lt. Gustav Klatt	Capt. Robert Burkhart
Aircraft	56-166	56-164	56-167	56-163	56-165	56-168
Mission	Round Trip	West-East	Spare	Round Trip	West-East	Spare
Ontario Takeoff Time	0659.57 4/5	0705.29 3/10	0719.15 4/5	0750.38 7/10	0756.38	0811.12 2/5
Over Floyd Bennett	1013.29 2/10	1015.2	—	1058.36 6/10	1102.17 2/10	—
Elapsed Time LA to NY	3 hrs 13 min 31 4/10 sec	3 hrs 9 min 32 7/10 sec	—	3 hrs 7 min 57 9/10 sec	3 hrs 5 min 39 2/10 sec	—
Elapsed Time NY to LA	3 hrs 58 min 46 6/10 sec	—	—	3 hrs 34 min 8 8/10 sec	—	—
Over Ontario	1412.15 4/5	—	—	1432.45 2/10	—	—
Elapsed Round Trip	7 hrs 12 min 18 sec	—	—	6 hrs 42 min 6 7/10 sec	—	—
MPH to NY	749.9	765.68	—	772.13	781.74	—
MPH to LA	607.8	—	—	677.7	—	—
MPH Round Trip	671.4	—	—	721.9	—	—

airborne tankers and two ground spares for Operation *Sun Run*. Each SAC tanker carried an instructor and student crew but the students were basically observers and did not actively participate. *Sun Run* pilots praised the skill and professionalism which the three ARDC and 10 SAC crews exercised. Collectively, they off-loaded approximately 372,000 pounds of fuel to six RF-101Cs during 26 *Sun Run* refuelings.

Col. Robert R. Schefer, the 93rd Bomb Wing Director of Operations, was in charge of all tanker operations. He supervised the 10 SAC crews which consisted of 63 flight officers and 20 flight airmen. They were supported by 55 maintenance men at Edwards AFB (13), Tinker AFB, Oklahoma (26), and Wright-Patterson AFB, Ohio (16) where the tankers staged from. Although SAC KC-135s flew only 10 direct support missions during *Sun Run*, they charged TAC with 20 indirect missions (deployments to and from staging bases) and 136 hours and 20 minutes of flying time. SAC considered 68.7 hours of additional indirect *Sun Run* flying time as "useful" for student training and did not charge it to TAC and *Sun Run*.

Operation *Sun Run*'s primary objective and success were obviously the speed records which were established. The secondary goal of *Sun Run* was to extensively photograph a strip of land from coast to coast. Although Capt. Sweet took some outstanding photos of New York, which were widely circulated, *Sun Run* photography was generally disappointing. Government-furnished photo equipment was not available for installation at the McDonnell factory. USAF technicians modified RF-101s with borrowed RF-84F equipment at the eleventh hour. They did not have the proper test equipment to check out their jury-rigged installations and equipment failures were common. A combination of heavy clouds, high speeds, equipment problems and limited pilot attention reduced the success of their secondary mission.

From an operational standpoint, *Sun Run* pilots pioneered RF-101 boom and receptacle refueling from KC-135s and literally "wrote the book" on such. Although two successful refuelings were made above high clouds at 40,000 feet during a practice mission, most line pilots lacked the skill to safely refuel that high. Most operational RF-101 refuelings from KC-135 tankers were conducted between 27,000 and 30,000 feet with two 450-gallon drop tanks. Operation *Sun Run* airplanes were flown without external fuel tanks and at significantly lower gross weights.

November and December of 1957 were good months for TAC F-101s. They established new west-to-east, east-to-west and round-trip speed records during November and an absolute speed record during December. RF-101As made the first of what would become many overseas deployments and set some new records while returning home for Christmas (Operation *Mobile Zebra*).

By the end of 1957, USAF F-101s had flown 9081 hours and surely helped make the USAF's 50th anniversary a golden one.

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ABOUT THE AUTHOR

Paul D. Stevens in the back seat of a New York Air Guard F-101B sometime after his orientation ride. Paul is a participant in the USAF Historical Program and has extensively researched the F/RF-101 series during the past 20-odd years. His previous AAHS contributions include: "RF-101s in Southeast Asia," Vol. 14, No. 4; "The Air Kings of Lomax," Vol. 21, No. 4; and "Operation Fire Wall," Vol. 23, No. 1. Paul would enjoy hearing from anyone with an F/RF-101 interest at 88 Saugaturk Road, Montgomery, Illinois 60538. Photo by Maj. Edwin K. Kitow, Jr.



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