



The 1912 Story from an AIL operational perspective, part 1.

I was recently encouraged to relate some history of the 1912 program by Bert Fowler. I think this is a tale worth telling. The 1912 program was very successful and brought a lot of money into the AIL coffers. Very little is known of the program outside of those directly associated with it. It wasn't until the 1980's that the existence of an ELINT system on the SR71 was made known.

This narrative is about my experience working on the 1912 program from sometime starting in late 1964 and lasting to 1992. So bear with me, this may be a long story. I apologize for any misspelling of names, but the events are to the best of my recollection. Other old timers of AIL may tell their own tale and it may differ from mine but this is what I remember.

George Skahill and I were working in the Antenna Group under Jim McDonough in Melville when we were requested to do some work for a group led by Greg Stephenson and Rod Lowman in the Data Systems Group in Deer Park.

We were to work on an 'Antenna Coupler Bay' that would be used to do ground checkout of an ELINT system. George and I had secret clearances but did not have a 'need to know' on what the system would be used on. We only had dimensions of the system and the frequencies that were to be covered, 60Mhz to 16Ghz. Our work was conducted in the basement of Deer Park manufacturing area, behind 2 cipher locked doors. During the first 6 months of working on the coupler bay, President Lyndon Johnson announced the existence of the SR71. (Actually it was initially the RS71 but the President mixed up the first two letters.) At the time a picture of the

SR71 was printed in the New York Times and both George and I surmised that it was the vehicle. Some time in 1965 after we had a somewhat working system and began to get some prototype 'couplers' built, George went back to the Antenna Group.

As I recall I finally was briefed into the program at a 'Blue Feather One' level. I remember that the job was through a Fairchild company situated on Larkfield Road just south of Jericho Turnpike. AIL was contracted to build the ELINT system along with the processing software and the checkout equipment and its associated software.

Once the coupler bay was built, it became necessary to assist in building the AGE cart that would control the system checkout. During this time Mike Silver and I went to Hewlett Packard in California to see how their production of RF couplers, and RF sweep generators were coming along. I think the 1912 program was an initial purchaser of the HP sweepers that covered a full octave and they were very heavy. The sweepers were to be installed in drawers in the AGE Cart along with an early version of an IBM 360 computer that also was very heavy. Once the AGE cart was fully assembled it was not as mobile as we initially thought it would be. The work on the AGE cart was done on in a walled cipher locked enclosure, near the indoor anechoic chamber in Deer Park. Co workers were Stan Grzebyk, Danny Linino, Bernie Meuhler, Roy Bruno (I may have the spelling wrong on those, sorry,) and an Air Force Sergeant, John Spec who spent most of the year at AIL.

I graduated from Seattle University and was hired right out of college by AIL in June 1958. In March 1966, after talking it over with my wife Jan, we decided we wanted to live somewhere other than Long Island. We had a nice house in Northport Village but felt that LI was too confining for our 'out west' persona. I talked to Greg and Rod about my leaving AIL and they asked me if I would like to go into the field as part of the 1912 program office to work on the program. "Where?" "California" "what city?", "can't tell you but will be in Northern California", "how long", "one, possibly two years". After talking it over with Jan, who was born in Fresno, Ca, we decided to sell the home in Northport and go to some unknown place in California. You can see how attached to LI we were!

I got a 'Blue Feather Two' clearance and found out it would be to Beale Air Force Base near Marysville, California about 40 miles north of Sacramento. But I could not tell anyone not cleared, where I was going. In March it was decided that the AGE equipment would be ready for delivery sometime in July and so Jan and I put our house up for sale and planned to leave LI in early July. I contacted the site manager for AIL at Beale AFB, Frank Kiel, and sent him some money to put an ad in the local paper for a rental that would be sufficient for my family of 5 girls and 1 boy somewhere near Beale AFB. To my surprise we got a response offering a 4 bedroom house on 10 acres about 12 miles from the base and we accepted: to begin occupancy mid July. As with all projects, as I have come to learn, software is the last thing to get done. Around late May 1966 it became apparent that the AGE would be delayed several months because of software. Since I had already had a buyer for my house I could not remain on LI and was given the OK to go to Beale and report to Frank. The movers came on July 4th weekend and packed up the house and we were off for the adventure of our lifetime.

This is the end of part 1

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Retired “1912 Program Engineers” reunion at Millerridge Inn, Oct. 7, 2010 for lunch, laughs & conversation that last many hours.

Standing left to right: Lois and Dick Glatzel (LI), Joe & Margie Gaug (LI). Sitting left to right: John Steginer (LI), Bob Putland (Yuba City Ca.) Joe & Cathy Trimboli (LI).

We arrived in Marysville, California and stayed in a Motel for about a week until our furniture arrived and we could move into the rental. I reported to Frank Kiel. The entire SR71 operation at Beale was under the 9th Strategic Reconnaissance Wing (9th SRW). The 9th SRW came out of another operation on Beale at the time, the 4200th Squadron, which was even more secret that we were. What the 4200th was doing is for someone else to tell.

<http://www.wvi.com/~sr71webmaster/srrandom.htm>

It should be noted that the Air Force staffed the SR71 program with the 'cream of the crop', from the staff, to the crews, to the maintainers to the analysts. They were well qualified in every aspect of their assigned duties. What they didn't know, they learned fast. The reason AIL was able to support the program as long as it did was because the AF would rotate people every 3 to 4 years and it was hard to pass on the acquired knowledge in that amount of time.

After getting IDs and car passes to get on base and meeting the Air Force people in the field shop, there was very little to do since the SR71 and all the equipment was involved in flight testing at Edwards AFB. So I volunteered to go to Edwards to do whatever I could to help. Since the AIL field shop at Edwards, run by Mike Fierro, was fully manned and there was a need for analysts looking over the processed ELINT data, I was assigned to work for Jim Thompson in his evaluation group. I knew about antennas and RF but nothing about ELINT but caught on quickly. On weekends I would travel to Marysville or often fly a Lockheed shuttle flight from Edwards to Beale. Monday morning Beale to Edwards and Friday evening return. When that was not available it was drive or a commercial flight.

After several months of analysis of ELINT data at Edwards the AGE equipment was being shipped to Edwards to check out the AIL developed ELINT System. I told Jim that I would be going to the field shop to run the AGE but he got Greg Stephenson to have me remain in analysis because of the workload and Stan Grzebyk accompanied the AGE and became the expert in the field shop on that equipment. It was an exciting time at Edwards with the SR71 in flight test status and the U2 flying out of north base at Edwards. The B70 had crashed in June 1966.

The ELINT processing computers were Control Data Corporation (CDC) 3200 and the program had some of the first produced by CDC. As I recall, Sal Altomare and Dave Barbour were the processing gurus at the time. I remember spending a lot of after work time at the Bar and around the pool at the Desert INN in Lancaster discussing what should be done with the software and how to develop calibration software programs that could use known ground sites to improve accuracy. Many beer fueled software discussions went into the wee hours.

Sometime in late 1966 the SR71 finally came to Beale AFB and I could sleep in the house I had rented. It was on 10 acres with several horses being boarded in an adjacent barn which my children were able to ride accompanied by an adult. I never went back to work in the field shop and when the dust finally cleared I was the surviving AIL ELINT guy at Beale. Mike Fierro came up from Edwards to take over the AIL office and Frank Kiel was PCS'ed to Okinawa, Japan to run the AIL operation at Kadena Air Force Base. The AIL Okinawa operation consisted of Frank Keil, Bob Williams, John Giannese, Stan Grzebyk and Ron Badamo. When Frank Kiel left Marysville to go to Okinawa he gave me his entire bar supplies. As a result I ended up with quite a variety which lasted me quite a few years since I didn't drink hard liquor at the time.

What was interesting was that when we in the field sent in receipts for living expenses, we were instructed to remove all evidence of our location from the paperwork. This soon became a joke to us. No one at AIL other than the 1912 program office folks could know where we were but everyone we dealt with in the local area knew we worked for AIL. We had bank accounts, forms

to fill out for almost everything and wondered if the enemy spy network was too stupid to figure it all out. In 1970 I graduated with a Masters of Science in Systems Management degree from USC. The courses were taught at Beale AFB.

As I got further involved with the ELINT analysis and working with the Air Force analysts I started to program in Fortran. We had a at least a weekly conference call with the 1912 program office in Deer Park usually with Shelly Katz on the Deer Park end. As software bugs were uncovered I would make any changes in the processing software as necessary until the next software release came from AIL. In time I became very good at writing programs for in depth analysis of the data to the pulse level. It became necessary for me to travel to Okinawa when operational problems occurred that impacted ELINT processing. Later, when the SR71 became operational at Mildenhall AFB in England in addition to the operation at Kadena I would go TDY about once a year to one of the locations to update the processing software.

The first SR71 operational mission flown from Kadena was over North Viet Nam in March 1968. The SR71 was flown by the Air Force and replaced the A12 flown by the CIA. Several of the first pilots of the SR program came out of the A12 program. AIL was involved with the SR program from its very start in the early 1960s until the end of the program in the 1990s.

As a side note I did not find out until October 2007, during an SR71 symposium at March AFB where I was a panel speaker, that the 'Blue Feather' clearances were a CIA designation. This information was from an SR pilot that came from the A12 program.

My first trip to Kadena was in July 1969. It is easy for me to remember the time because I saw the live image of Neil Armstrong stepping on the moon on a TV in the lobby of the Koza Palace Hotel where I stayed during the TDY. The trip was on an AF KC135 refueling tanker, Beale to Hickam to Kadena. Landing in a hot afternoon at Kadena being greeted by AIL and AF troops with ice cold beer as we got off the plane and assisting in unloading baggage while drinking beer is a fond memory.

I found out that TDY to Kadena was one of the best kept secrets in the Air Force. I remember processing ELINT data following a flight over North Viet Nam and finishing sometime just before dawn. Then the civilian part of the crew would go to breakfast at some little Okinawa eatery at 4am and have steak and eggs for about \$2. Golf during the day, ELINT processing during the night, this was the routine when TDY during the early days of operational missions. Sleep was a often neglected option.

This is the end of part 2

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The 1912 Story from an AIL operational perspective, part 3.

On my first trip to Okinawa, the problem was excessive noise in one of the receivers that could not be repeated with the SR the ground or on a bench in the shop. It was finally determined that the 'potting' surrounding a power supply had an air gap that caused it to arc at operational altitude. Once repotted the problem went away. I had nothing to do with solving the problem but did a lot of ELINT processing and analysis during the TDY.

Being on Okinawa during the Vietnam conflict was interesting. Many times we would have lunch in the golf course club house that was on a hill overlooking the runway at Kadena. The large windows would rattle from the noise of B52 laden with iron bombs under the wings between the fuselage and the inboard engines. Those bombs were in addition to the two internal bomb bays also being full. The B52s would be lined up on the taxi way waiting to takeoff. This would go on for the better part of the lunch hour. The roar was deafening.

Sometime later two SR71s would take off about 30 min apart. One primary and one spare. If the primary had to abort just prior to entering the operational area the spare would be available. More often than not, the primary would complete the mission. More deafening roars

After mission data was processed at Kadena to produce a 'flash report' the raw mission tapes were sent back to Beale to be reprocessed for further analysis. On one occasion one of the missions was flown over North Viet Nam during a 'Line Backer' mission. The SR71 at 80,000ft and B52s were dropping bombs from a somewhat lower altitude. Once the analysis was done, a final report went out from Beale that identified about 20 different SAM sites that were active during the mission. This report went to SAC in Omaha and the response was that there were not that many sites in that area. So SAC sent out a high ranking ELINT INTEL officer to do a fine grain analysis of the data. He and I went over the data at the pulse level for about a week. In the end he and I came to the same conclusion: I had missed at least five additional sites in the original analysis. The EMR was a very good ELINT system.

An idea to use the 'doppler' effect of the minute change in PRI of stable emitters to locate was attempted. Matt Dwork was the driving force guiding the software effort. It did not work due to the stability of the emitters was not sufficient to give reliable data. An interesting idea, but not feasible.

The SR71 began some operational missions out of Mildenhall, England sometime in the mid 1970s. Originally these were rather short TDYs, less than 30 days. I recall that the first deployment of the EMR almost didn't come off. The EIP mission data was recorded on large reels of magnetic tape and played back on a Parsons tape machine. Fidelity was obtained from the head/tape speed combination. Since the head was stationary the tape ran by the head at a very high speed.

Pete Calandrino was the AIL guru on the Parsons equipment and was on the flight line at Beale over seeing the loading of the equipment on to a KC135. The Parsons recorder was strapped to a pallet on a flatbed truck ready for loading. An AF forklift driver was in the process of lifting another piece of equipment from the opposite side of the truck and got the tips of the fork lift under the Parsons pallet and tipped it to a point where it fell off onto the tarmac. Pete spent about 3 days without sleep getting it back up and running, which we all thought could not be done. It finally got to Mildenhall.

Most of the AIL people were staying at the Rutledge Arms Inn in Newmarket, England about 25 miles from the base. I was fortunate, at least for the first two nights as I had a room with a private bath. On the second evening there was a power failure that put the Inn in the dark. We had just sat down in the dinning room to order dinner and all the lights went out. We got the word that the kitchen was closed and candles were being lit and placed on tables.

We left and went down the block and got several orders of fish and chips that had just come out of the cooker prior to the power failure. We brought them back to the Inn and sat down to eat when the manager came in a kicked us out for eating food not purchased from the kitchen's Inn even though the it was still without power. We went to one of our rooms and finished out dinner.

When I got back from the base the next evening I found that my room had been changed. When asked, I was told that it was the beginning of horse racing season and the room I had was considered a 'lucky room' for one of the regular race fans that had it reserved for the races every

year. Now I had to share a bath and was fairly pissed that I had not been told previously when checking in for an extended stay.

There was a CDC tech rep that set me up for a place to stay in the village of Mildenhall. It was with a family that had a spare room and bath and was more than happy to rent to an American and get some per diem money. An additional benefit was that the owner was a former cabbie from London and took several of the tech reps on a tour of London. We let him drive one of our rental cars which at the outset seemed to be a mistake because he drove just like a London cabbie. Scary but we covered a lot of London during the tour.

Once we got the equipment set for processing the mission data, it was announced that there would be a 4 day down time with no activity. Pete Calandrino came to me with a plan that he and several others planned to take a fast trip to Paris, just to see Paris. He had worked out the details of the ferry schedule from Dover to Calais and we scrambled to get ready to make the 5pm ferry. I drove around to pick up Pete and the others and found no 'others', all had some form of excuse for not going. So Pete and I drove frantically to Dover to catch the 5pm ferry and arrived in time but the schedule had been changed to 4pm and we had to wait until 8pm for the next one. We left the car at Dover and carried our backpacks to Paris after spending a night in Calais and catching the train to Paris. The night in Calais is a story unto itself. We spent one day and night in Paris then trained to Boulogne for a hovercraft ride back to Dover. About the best I can say is that I have been there.

The area in and around Newmarket and Mildenhall were used as bases for B17s during World War II. There were large relatively flat fields that were used as landing areas. Now the area was dotted with horse farms with large areas for training. There were several race courses nearby. Many thatched roof houses still in use. All in all a great place to visit provided it wasn't cold and raining, which it was most of the time.

This is the end of part 3

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The 1912 Story from an AIL operational perspective, part 4.

Wow, I am amazed that someone is reading this story. I just got a correction via e-mail from Matt Dwork that the failure of the Doppler effect to locate emitters was caused by an error in the navigational data, uncovered by Dave Ossosky. Thanks to Matt for that correction. To tell the truth, I always enjoyed my meetings with Matt although they were rare. He tried to explain the math behind the ambiguous region of the DFing process of the EIP. It went right over my head but it sounded good&ldots;

The 1912 program afforded me quite a few opportunities for travel to brief the EMR, its capabilities and SR71 ELINT processing in general. In the early part of the program the majority of the Direction Finding (DF) analysis was performed on an ADAGE interactive graphics console. The analysts would get the data processed by the CDC computers and further process on the ADAGE, rather cumbersome, but the best we had at the time. One trip to was to Maryland with Maj Ron Knecht to brief some folks at the FANX near BWI. It was a little disconcerting in that there were several areas that only Ron was allowed into and one or two areas where I was allowed in and not Ron; something about level and type of clearance. Never did get a clear explanation of it. Only a short trip, overnight as I remember but I always thought I was being observed.

Another trip I took was to NSA at Ft Meade, Maryland. There was a lot of ADAGE equipment located there and they had some pulse level analysis tools that we could possibly use. It was sometime in the summer and I was wearing sandals and shorts on the plane. I got there but my baggage went to Minnesota and after haggling with the airline people I got permission to buy clothing for the meeting the next afternoon. I spent about \$150 for everything I needed to look fairly professional and was able to get all the labels off so I didn't look like a mannequin. I finally got my baggage the next day.

The meeting was in one of the basements and lasted until 1am the next morning. The NSA man that was demonstrating the analytical software was a night owl and usually worked into the morning. It was an interesting session to say the least. I had checked out of the motel prior to the meeting. After the meeting was over I drove to Baltimore airport and caught an essentially empty flight to New York to go to AIL Deer Park for some other meetings. I was the only person to board the flight and as luck would have it; my baggage did not get on that flight. It took 2 days to get my clothes.

During one of the early trips to England I was asked to go with an AF lieutenant to Germany to brief the EMR system to a group in Germany at the 'Patch Four' barracks in Stuttgart. The Lieutenant was to brief imagery. We flew on a C130 to Ramstein and rented a car and drove to Stuttgart. I have never driven so fast! Just to keep from being run over by trucks we had to drive

around 160 km/hour. Once we got to Stuttgart we found out that only the lieutenant's clearances had been sent so I could not do the EMR briefing. Go figure. We returned to Ramstein that evening.

Ramstein is near Kaiserslautern (K Town) and we were there during 'Facshing' a sort of Mardi Gras prior to Ash Wednesday. We spent a day walking around K Town drinking beer and toasting everybody. Lucky for me the lieutenant had taken German as a student at NYU and we didn't get into too much trouble. However he must have skipped the class on what to order at meal time; I did not enjoy our only 'sit down' meal. The other meals were snacks, walking around with a stein in one hand and some 'brat' in the other.

I also traveled to Omaha, Wright Paterson, the Pentagon and Greenville Texas for 1912 program related meetings. The Omaha and Greenville meetings were for joint sessions with the people running the RC135 ELINT AEELS program. There were several heated discussions of how to process and report data with Barry Kibbe of SAC. When he retired he went to E-Systems in Greenville, Texas and I also ran into him at the O'Club in Mildenhall during one of the SR71 deployments.

One interesting benefit to the early trips to England was the perks given by the rental car agency Wilhire. On one weekend, a Saturday I think, they took about 10 tech reps to the town of Ipswich to a riot and a football (read soccer) match broke out. The rental agency had a company box on the 50 meter line cozy and warm. Refreshments and food was served throughout the melee. I never had been a soccer fan until I was able to watch it this way. It was cold and rainy on the pitch (read field) but being warm (learned to love Scotch) made it enjoyable. It was a lot more enjoyable than the NY Giants football game I went to at Yankee Stadium around 1960 in a snow storm. At that outing we had to bring our own warmth in the form of flasks wrapped in blankets, both to keep us warm.

On one of the trips to England I took my wife Jan. We stayed in the Smoke House Inn a favorite watering hole adjacent to the base. We did a lot of touring and in the Northeast part of England. Jan was able to attend a soccer match in Ipswich hosted by the Wilhire. We did go to London one weekend and do a tour there. The most she remembers is how cold it was. We attended a Mass at a small church in London and there was no heat, only cold stone walls.

The northeast of England is rife with interesting and historical sites. In Bury St Edmunds, about 15 miles from Mildenhall, are the grounds of the abbey where the Magna Carta was signed. Cambridge was about the same distance in the other direction with great shops and college grounds. Ely Cathedral was also near by. It seemed that every church or cathedral in the area had

a tomb of someone buried near the altar. I may be mistaken but there seemed to be a lot of wives of some King Henry just lying about and then a church would be built over her. Probably not true, but it seemed that way.

This is the end of part 4

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The 1912 Story from an AIL operational perspective, part 5.

Sometime during the 1970s the AIL EMR ELINT system was to be replaced with the EIP (ELINT Improvement Program). This added another dimension to the accuracy with an Azimuth/Elevation system replacing the Azimuth only system of the EMR. The EIP antenna arrays were 'double dual'. I think the configuration came from work done by Bob Goodwin during his time at AIL. I remember that Len Kuskowski worked on the upgrade. Included in the upgrade were improved recording/playback system and a preformatter. During the testing of the EIP system at Beale, John Speth, Tom Brown and I began processing the EIP data to assist the field shop in testing of the new system. The EIP processing software was to be completely new and being written to accommodate 'real time' processing if a downlink ever became available on the SR71. The upgraded software for the EIP was still in the process of being written back at AIL. The software was being done in a group headed by Cynthia Cousins. With not much to do, I began to modify the EMR processing software to process the EIP data. This was initially done to familiar myself with the formats and to assist the field shop in trouble shooting. This was quite a task since the basic format of the pulse level data was very different. In addition the recorded data on the EIP recorder also included navigation data. We did not have to depend on getting navigation data from the Mission Recorder System (MRS) data processors.

John, Tom and I set up shop on the ground floor of the SAGE building at Beale in the area where Houston Fearless was busy modifying mobile processing vans, including ones for EIP processing. To add to the complexity, the original CDC 3200 computers were being replaced with SEL 32/75 computers. An additional benefit was that we got away from using IBM punch cards to write the programs.

I more or less directed the programming effort of this small group and it wasn't too long before we had modified the EMR batch processing software to a point where we could completely process the data to the report level including locating and identifying the signals. We had also written quite a few analysis routines to check the processing at different points in the processing. We had been using this software for about one month and the Air Force analysts were getting familiar with the vastly improved accuracy of the EIP. The added benefit was that the evaluation

of the EIP was easier than just looking at raw pulse level data. Everyone in the ELINT analysis shop was aware that we were able to completely process the EIP data.

During one of the test flight over an emitter range located in the US, the EIP fixed and located all the emitters that had been coordinated for the test. While processing and evaluating the data there were several emitters that were identified and located that were not on the list of coordinated emitters and were over 100 miles from the flight path. We also included these in our evaluation report. Several days later we had a visitor from somewhere with clearances that wanted to look at our data and especially at the uncoordinated emitter data. After agreeing that the EIP had done a superior job of identification and location he confiscated the data and went back to wherever he came. I don't think the existence of those emitters was supposed to be known. They were not of US origin. However it did prove that the EIP on the SR71 had the ability to ID and located at a range far greater than any other air breathing collector.

One morning I got a call from Don Raymond, an AF LtCol in the Pentagon. I had known Don since his days in the INTEL vault on the third floor of the SAGE building. He had just become the Program Element Monitor (PEM) for the SR program. Don asked me if we could process the new EIP data and how good was it. The answers I gave him were 'Yes' and 'Very Good'. I explained how we were doing it and that the testing of the EIP was going well.

About a half hour later an AF officer (can't remember his name) came running back to the analysis area looking for me. He wanted to know what I had told Don Raymond. He was a little pissed because he had told Don several hours previous that since the EIP software had not been delivered from AIL that we could not completely process the data. He was supposed to be the AF expert on it but was not aware of what was really going on. After I told him of my conversation with Don and he had simmered down and talked with several of the AF analysts he agreed that we were indeed processing the data to the report level. He asked what I was going to be doing next week and what ever it was it would include going to England to process ELINT data. The original plan was to not send the ELINT system on this deployment but that quickly changed and I spent the next several weeks at Mildenhall.

As I recall, the first EIP trip to England was for the SR71 to fly some operational sorties while the Warsaw Pact countries were playing war games. The games would involve the deployment of equipment from storage yards, including radar and early warning systems to support the exercise. The AF was determined to find out where the preferred SAM sites were located.

By that time the 9th had a complete Mobile Processing Center (MPC) in vans for deployment. The complete unit was flown to Mildenhall and set up in a large hanger. There were several portable buildings in the hanger used for offices and an adjacent area where the vans were set up. This was late in the year and the hanger was very cold. Going outside the vans or the office space and into the hanger proper was a shock to the system. To make matters worse, the restrooms were not located in any warm area.

The Colonel in charge was Lonnie Liss. I think he was the vice wing commander of the 9th. LtCol Don Raymond was also present. The Colonel was a little apprehensive about the processing of the EIP data with non-sanctioned, field written software and expressed that to me.

He asked that he be the first one told if there were any problems. I replied that if any problems arose and I could not solve it within a 30 min I would let him know. We had no problems during the deployment and the INTEL community was delighted with the reports.

This first EIP deployment was over the Christmas holidays. Col Liss, LtCol Raymond and I had Christmas dinner at the Bull in Barton Mills. About the only thing I remember of the meal was the roast beef, the scotch and the desert tray with all sorts of chocolate cakes on it. We took about 2 hours to enjoy the meal.

The outcome of this was that once back at Beale the AIL EIP software began to arrive. The processing we had developed in the field was not 'real time' but was almost a fast when the missions were played back from the collection tapes. Since there was never a data link put on the SR71 there was no way to do a real 'real time' check of processing speed. However the field developed software was used as the evaluation tool against which the 'sanctioned' software was measured. Tom, John and I had done a real good job.

When the SR71 was finally deployed to England on a permanent basis, Tom Brown became the site AIL ELINT expert and was able to handle any changes we sent to him for minor upgrades. When major upgrades came along I would usually to the overseas locations for install and checkout and a little training.

During the TDYs to England most of the temporary AILers would stay at homes of the British folks around the Base. On one of the trips I was staying at the home of Dave and Pat Cook in the little village of Fornham St Genevieve near Bury St Edmunds about 20 miles from Mildenhall. During the winter months the biggest problem of driving at night was fog and black Ice.

The ELINT processing and reporting would usually end sometime around midnight and driving all the way back to Dave's was not that enjoyable. On one particular Friday night I was going about 30mph and hit some black ice and ran it the end of a stone wall. No injury, but the rental car was not drivable. I did call the rental agency about midnight and the manager came out to give me a ride to Dave's. I had a hard time getting him to believe my story but he finally did.

The following Monday Pat drove me to the rental agency to get another car. They were a little cautious about renting to me but finally gave me a rather small car. I was driving to work about 15 minutes later and got stuck at a 'round about' near the base. I looked in my rear view mirror to see a woman with a kid in a car seat paying more attention to the kid than the line of cars ahead and she tried to stop but rear ended me. No one was injured but her car was inoperable. So I put her in my car and drove directly back to the rental office with solid proof that it wasn't my fault. This time they gave me a ride to work because they did not want to rent me the nice new Volvo they had, but would get me another car by that afternoon.

I went to lunch that day at the O'Club and rented a room for time I would still be in England. I paid for it out of my own pocket so I would have a safe place to go to when fog or black ice was a problem. Several times when there would be a SR71 crew rotation and there were no rooms available I would give my room key to one of the pilots for the night and slowly drive to Dave's.

On one of the crew change occasions, LtCol Don Emmons (later Colonel and SR71 project head at Norton) and LtCol Lee Shelton (later Colonel and Okinawa Detachment Commander at Okinawa) were having a few beers at the O'Club stag bar. We decided to go the Marauder Pizza house on base and order one and bring it back to Lee's room with a six pack for dinner. Don ordered a Jalapeno Pizza and while putting some additional hot pepper flakes on it, the top of the hot pepper shaker fell off and the container emptied onto the Pizza. Don brushed what he could off and we went back to Lee's room. I don't ever remember drinking beer so fast. The jalapenos and the addition of the hot pepper made for an interesting meal. The next day was also interesting, even to the point of sitting down.

This is the end of part 5

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The 1912 Story from an AIL operational perspective, part 6.

With the EIP and software package the ELINT reporting became very easy. By that time Tom Brown was firmly established in England, even to a point of getting remarried to an English lady. On one occasion when Tom desired to take a vacation, my wife, Jan, and I stayed Tom's home during my tour there as Tom's replacement. His home was just outside of Bury St Edmunds and very modern and cozy. Jan I spent time touring the north east part of England. Every Friday evening the fish monger would drive around the neighborhood selling fresh fish which is how we became familiar with monk fish. Also the milk was delivered.

As I became more familiar with the formats of the data, more analytical tools were developed in the field. The calibration of the system became a much easier task, using verified ground truth to adjust the calibration tables. There were occasions when we were able to take a few cuts from different missions and produce a valid identification and location for a report. Processing of the data became routine while the 'in depth' analysis occupied more of my time.

Sometime during the early 1980s it became necessary to replace one of the AIL reps on Okinawa because of medical reasons. I was on Okinawa performing software upgrades when that occurred. The program office requested that I stay for a few months until a replacement could be found. I said I would, provided that Jan was able to accompany me. The kids were out of high school and could pretty much fare for themselves for 2 months or so. I came back to the States for about a week and returned to Okinawa with Jan and began our adventure on Okinawa.

The SEL computer tech rep rented us a room in his house overlooking the Pacific and that is where we made our home for several months. In between work we did a lot of touring and shopping. On one occasion Jan and I rode in the pickup that preceded the SR71 taxiing to the end of the runway to get ready for takeoff. This was a normal 'FOD check' that was part of every launch. When the SR71 had finished the final engine check on the ground the pickup would drive down the main runway to the point of 'lift off' again checking for FOD. Once there, the pickup pulled off the runway and we got out of the pickup and with sound suppressors over our ears stood just off the runway as the SR71 took off. With afterburners blazing and at max thrust the experience is awesome. Jan enjoyed the trip and thought if the opportunity came for a longer tour she would be agreeable. At the end of the tour John Speth came over to replace me.

Once we returned home to Marysville, I asked Jan which was a better place to visit, England or Okinawa. She said that if I ever had the chance and the choice, Okinawa was where she would rather spend time.

I came back to Beale and an AILer from the B1B program at Edwards had come to be trained on the ELINT processing. John Speth had spent about a month training him prior to my return. I spent an additional two months training him and when asked by the Program Office (PO) in Deer Park whether he was ready to be sent out on his own, I said he wasn't ready and that he needed more training. His main concern during the training was when he would be able to go to Okinawa. However he was sent to Okinawa in spite of my objections. I had volunteered but the PO shot me down saying I was too 'valuable' doing what I was doing. I warned them that if he didn't really get better in a short time that the Air Force would want him replaced.

About 2 years later a report came from the 9th AF INTEL on Okinawa that they were not happy with the replacement. I knew most all the AF individuals running the operation, including the Detachment Commander and they were requesting that I replace the replacement. Again the PO said no. This was sometime in late spring of 1985. In June 1985 there was a SR71 Blackbird reunion in Reno, Nevada. They occur every two years and I had attended them all.

This time some of the PO people attended as did several of the Okinawa AF INTEL people and the Detachment Commander, Col Tom Alison, and the SR71 project director from Norton AFB, Col Don Emmons. I was pleading my case to the PO crowd and getting nowhere. As I went back to the open bar with my tail between my legs Tom and Don asked how it was going and why wasn't I going to Okinawa. I told them that the PO had shot it down. Don whispered to me, "Who we got to kill to get you over there?". I said that I would pass his message on to the PO and see if I got a more positive response.

I believe that Dom Fabio was the Program Manager (PM) at AIL however it may have been Jack Migliaccio. All the AILers went to dinner at some Italian restaurant in Reno, recommended by Tom Alocca. Sitting around the dinner table I pleaded my case for going to Okinawa on a permanent basis and finally was given a tentative OK. Some time in late December 1985 Jan and I were on our way to Okinawa.

Packing to go PCS to Japan was interesting. We could only take 1500 pounds of whatever and after clothing and a few personal items there wasn't much else. A few small furniture items and the weight limit was reached. Not like moving across country.

We had planned to fly out of Sacramento to Seattle, spend some time with Jan's folks in Everett, Wa and then Seattle to Okinawa right after Christmas. That plan didn't get off the ground. Arriving at Sacramento Airport it was completely fogged in and nothing was flying in or out. In fact that condition lasted for a week or so. I went to a ticket agent and was able to schedule a flight about 3 hours later from San Francisco to Seattle and rented a car to get there. We finally arrived in Seattle and stayed with my cousin for 2 nights before going to Everett to stay with Jan's parents.

In the time we spent in Seattle we both took a drivers test and got Washington State drivers licenses. Then we went to Everett and opened a bank account and also registered to vote in Washington. The reason for doing this was that California was very aggressive at taxing residents that left for a while still being a resident of California. This had happened to several Lockheed tech reps that had gone to England. When we left California we closed out accounts and canceled our homestead exemption and rented out house, albeit to our kids. We never had any problem with Ca. taxes.

The west coast was mostly in fog for the time we spent in Washington. When we got to SeaTac to fly to Japan they were not taking off but had to bus us to Boeing field to board a plane. The catch was that Boeing field was too short to take on all the fuel necessary to fly to Tokyo so we flew to Portland with the plane half full of passengers to fuel up for the flight. At Portland the flight filled up with people that had been delayed the previous day because of fog.

We arrived at Tokyo Narita airport too late to make the connection to Okinawa. So we had to 'bag drag' to board a bus that took us to Haneda airport hotel to stay for the night. Jan and I were in a room with double beds that was so small that one of the beds was used to hold baggage because there was not enough room on the floor. The room may have had feng shui but no space. We flew out the next day from Haneda, Japan to Naha, Okinawa, Japan to begin out 4 plus years of adventure in the Far East.

This is the end of part 6

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The 1912 Story from an AIL operational perspective, part 7.

Once we arrived on Okinawa around Christmas 1985 the AIL crew consisted of Ron Badamo, John Giannese, George Adamo and myself. Ron Badamo had made reservations for Jan and I for the first month at the Moon Beach Hotel a very nice place to stay. The majority of the residents were Japanese and we enjoyed the stay. They had a buffet every Sunday morning with a choice of either Japanese or American foods. It began our love affair with Japanese food.

I got a rental car and for the first week spent time getting IDs, opening bank accounts and other paperwork that needed to be done. I also practiced driving on the left side of the road. After the first week it became easy for me, however Jan did not want any part of the driving. I did take her out for lessons a couple times but she was not comfortable driving for the first month.

Jan and I spent a few weeks looking for an apartment and found one just outside the base gate #5 and up the hill about ½ mile. The Apartment house had 6 units and had just been completed; we were the first tenants and got our pick. We got a 2 bedroom unfurnished, only stove and refrigerator, and one air conditioner high on the wall in one bedroom. It was 576 sq ft. When the shipment of our belongings came we took inventory and started shopping for furniture to furnish the apartment. In addition we bought 2 cars and Jan cautiously began to drive, mostly to the base to shop for kitchen stuff. This became our home for the next 4+ years.

Work became rather routine. With the Viet Nam conflict over the mission load was not very great. The tech reps would usually go in about 8am, check everything out and if there were no mission scheduled and all the processing from the previous mission was complete and shipped off to Beale it was off to do something else. I spent a lot of time at the gym playing racquetball and Jan spent time taking pictures with her new Nikon and in the hobby shop on Kadena developing the film and framing pictures. She got very good at all three.

During the early days of our stay on Okinawa the personal computer became very popular and the 'Intel 386' was just being put into several computers. A group of 7 tech reps got together and ordered the latest and greatest 386 from Gateway. We wired off a great sum of money and waited anxiously for our packages to arrive.

We all got them in a couple weeks soon after and proceeded to join the latest 'PC Users Group' on the base. We all had various tales to relate every week about what we had discovered and shared little secrets on the innards of our new toys. While fiddling around with the BIOS and playing with the settings I rebooted and the screen remained blank. I panicked and no matter what I did it I could not get anything on the display. I was ready to ship it back to Gateway but was saved by a Users Group guru that told me to disconnect the battery that kept the BIOS alive and after a short while the BIOS would revert to the default settings. The next morning I disconnected the battery and went to work. When I came home that afternoon it booted up with no problems. My first lesson on PCs was to not screw with the BIOS if you don't know what you are doing.

These early '386' computers were large and quite heavy. Lugging them to a Users Group meeting became a chore. The motherboards were rather large and populated with many memory chips that looked like little multi-legged bugs. /a friend went to Taiwan for vacation and I asked him to get me some additional chips and parts for a '286' for me to assemble. He got the memory chips for \$1.95 each and bought me 108 of them and parts for the '286' which I put together and put in the field shop. I was in PC heaven. A couple of years later when the newer mother boards were being put into newer computers the manufacturing of the memory chips changed, I retired the '286' and sold the memory chips for \$7.95 each. Best investment I ever made.

Some time in our first spring on Okinawa Jan and I were enjoying swimming at the marina that the Air Force recreation center managed. It was located just off the SW end of the runway on the East China Sea side of Okinawa. We were attempting to master wind surfing. Our attempts were to sail out to the lagoon side of the reef, jump into the water and swim back towing the windsurfer. After seeing out plight a gentleman gave us an offer we couldn't refuse. "I'll teach you how to windsurf if you will take a scuba diving class from me". We agreed and as a result learned a little about windsurfing and completed the basic and advanced scuba classes from him. Most of our free time together were spent scuba diving rather than windsurfing.

The scuba instructor was Slava Joukoff, a Russian from Australia that worked for Voice of America. He was an interpreter. His group on Okinawa were tasked with receiving TV broadcasts beamed down to Eastern Russia, namely Vladivostok. Russia has 10 time zones and eastern Russia is 7 hours ahead of Moscow. The operation on Okinawa was to record and interpret any broadcast that may have some international significance. If necessary the information would be on the US ambassador's desk in Moscow with a response prior to the broadcast being seen in Moscow. An interesting side of diplomacy.

We signed up for Slava's scuba class and went through about 2 weeks of training, both class work and water work and Jan and I became certified scuba divers. Slava said that I was the oldest student he ever had. He was sneaky, he tried to convince us to take the advanced course and we turned it down. Then he invited us to go on a night dive and we accepted. It was awesome since there are many more creatures out at night. After the dive, Slava told us that we had taken one of the requirements for the advanced course so we signed up for it. Slava taught not only diving but how to survive in certain situations. Later during our diving adventures we became associated with divers taught by other instructors that were only fair weather divers. Jan and I really enjoyed night diving and found several dive sites we returned to on a regular basis. With wet suits we had fitted and purchased on Okinawa diving became a year round activity.

Slava, his wife, Leka and their 2 children lived on the base and had been there for about 10 years when we met them. An interesting side note was that he sent his children to Japanese schools even though he was permitted to send them to the American schools on base. They spoke Russian in the home, Japanese at school and English to everyone on base. These kids became very multilingual. We dove with Slava about once a week until we left Okinawa. Diving became our passion.

This is the end of part 7

The 1912 Story from an AIL operational perspective, part 8.

As an aside to those that have read through these missives; I am reminded of an incident that happened some time in the early 1970s in the 1912 program. Every week Mike Fierro (Beale AIL site leader) would pack up boxes of computer printouts to send back to the program office so they could further analyze the processing. One particular printout was about 500 pages of bi-fold computer printout that I put into a printout binder and at the very top of a page about half way through I penciled in a note that the first person that read this page I would buy a dinner for. Sure enough, about a month later I got a call from one of the new analysts that demanded the

prize. I don't know if I ever bought the dinner but the experience did indicate to me that there were other individuals that were also anal about the data.

The operation at Kadena was known by several names. I think there are several web sites that list them. For us it was Det One or Ichi Ban (number one).

When I first arrived on Okinawa Ron Badamo assumed that I would become the site manager, a job he has been doing for several years. I assured him that I did not want the job and made that clear to the Program Office and to the people at Beale. I did not want to write weekly reports, handle time cards and answer phones, I wanted to spend any spare time diving with Jan.

I did not suspend my programming during my time at Kadena. It became necessary several times to 'alter' the data to facilitate processing. During processing of one particular mission the analysts noticed that no emitter 'fixes' were coming from data in band 8 on one side. I looked at the data and determined that the course and extra file indications seemed to be reversed. While the mission was being processed I rewrote a couple instructions in one of the analysis programs. After all the other data was processed I reprocessed the Band 8 data only, switching the course and extra fine data and reprocessed it. The fix worked and the remaining band 8 data was reported.

I went to the field shop and talked to Ron Badamo and asked him if the lines had been worked on since the previous mission. He indicated that they hadn't and that the system was going to stay 'uploaded' for the next mission. I showed him the data and how the software fix solved the problem and he reluctantly had the offending side downloaded and found that the lines had indeed been switched. This was the advantage in having the hardware and software produced by the same company. The cooperation was what made the fix timely. It took less than an hour to find and correct. Ron was a great site manager.

During the Iran Iraq War in the late 1980s there was concern about Chinese 'silkworm' missiles being deployed by Iran threatening the Strait of Hormuz. Det 1 was tasked to fly a mission to investigate this. This would be a very long and extended mission requiring many refuelings with the final legs consisting of a 'tanker drag' where the SR71 would have to fly at essentially KC10 speed and altitude. This was caused by the limitation of the amount of nitrogen that the SR71 was able to have to enable it to pressurize the fuel tanks at altitude. After the pre-mission checkouts were completed and the SR71 took off there was a long wait for their return. These became 11 hour flights. I think that there were 4 flown and all were successful.

The camaraderie of the SR71 group at Det 1 was evident. We all worked together and spent a lot of off time together, swimming, diving, picnicking, and touring Okinawa.

One incident is forever etched in my memory. On 21 April 1989, a Thursday, an SR71, tail number 974 (Ichi Ban) crashed just off the northern end of Luzon Island in the Philippines. The crew members were Dan House and Blair Bozek. It was at operational speed and altitude when one of the jet engines started coming apart. Dan, the pilot, got the SR71 down to 10,000 ft and slow enough for a safe ejection. Both crew members landed some 200 yards off shore and were picked up by some Philippine fishermen and taken to their village.

During the whole time all the support personnel were huddled in the radio room waiting word of their condition. I don't think I have ever prayed so much for friends as I did that afternoon. It was quite a few hours until we knew they were safe and not injured. It should be noted that prior to takeoff Dan and Blair had planned to have a party in the crew 'party room on Saturday the 23 of April. They returned to Kadena and hosted the party and had quite a story to tell of their rescue and finally being picked up by helicopter and flown back to Kadena. Their tale of crash and rescue is probably told in other pages on the internet and I will not attempt to relate it.

The wreckage of the SR71 was recovered from the ocean floor. It was in about 120ft of water and the navy sent an experienced search and recovery task force to the crash area. The parts were loaded onto a barge and transported to White Beach (US Navy facilities on Okinawa) and then loaded onto trucks to bring it back to Kadena. One of the bigger challenges was to cut some of the larger pieces into smaller chunks so they could be transported by truck on the roads of Okinawa. The SR71 structure was mostly titanium and cutting it into pieces requires special techniques. Once it was back on the base at Kadena it was put in bay 4 of the T-hanger. Ron Badamo and I spent several hours taking pictures of the parts especially the EIP. I don't know what the final burial place was for the remains of the SR71 but think it was dumped in some deep part of the ocean rather than buried.

After take off of one mission, it may have been one going to the mid east area, there was a report through Intel that a Russian bear bomber had flown over Okinawa at the time of take off. Interesting how they would have known the schedule, but I am sure there were sufficient resources available to spy on the operations.

Sometime during 1988-1989 we got word that the program was going to be shut down. The Det commander, Col Lee Shelton called an 'all hands' meeting to explain the situation. After his briefing he asked all enlisted and civilians to stay for a presentation by Dave Adrian (Magnavox, Radio contractor) and myself. Then all the officers left the meeting. Dave and I had prepared a letter to the representatives and senators urging them not to shut down the program. The letter listed all the reason we could think of for keeping the program open. We had a list of all the reps and senators for each state so anyone desiring could send a copy of the letter to their rep and senators. We also had purchased the necessary stamps for postage. Almost everyone sent a letter. Somehow we did not get canceled at the end of the yearly contract, only soon afterward.

It should be noted that once the SR71 had been shut down in 1990 and Iraq invaded Kuwait, CentCom requested that an SR71 fly over the area to provide timely information on Iraq's level of incursion into the Kuwait. After all, the SAC had sold the idea of the shutdown to Congress it was stated that the SR71 would be in 'Flyable Storage'. NOT.

This is the end of part 8

The 1912 Story from an AIL operational perspective, part 9.

For those of you that didn't get the chance to observe a SR71 engine run up close here are several pictures of a NASA J-58 run. http://www.enginehistory.org/p&w_j58.htm

Jan I did have the opportunity to take several short trips off Okinawa, two to Taipei and one to Hong Kong. The Hong Kong trip was with a tour which we immediately abandoned after one day and struck out on our own. We took the 'Star Ferry' to the island and caught a double decker buss and sat on the top tier and took pictures of the passing scenes as we passed by. We had no idea where the buss was going but felt that when we got to the end of the line there surely would be a return bus to the original starting point at the Star Ferry terminal. The ride took several hours and when we finally got back to our hotel there was a tour guide that had been looking for us for several hours because our hotel had been changed. Hong Kong was interesting but we enjoyed Taipei much more.

Both trips were interesting for me because of my interest in computers. It seemed that computer parts were available and being sold on the street especially during 'night market'. You would see a video or sound card laid out next to duck heads. At the time Apple was being vigorously cloned and 'pears, oranges and assorted fruit named computers were available.

Sometime in the early 1980s, Bob Williams was coming back to the states to Beale for some training. In his briefcase he was carrying some 'chips' from the preprocessor that had to be upgraded. Customs in Seattle went through his luggage and tried to confiscate the items, thinking they were cloned parts of Apple computers. He would not give them up citing they were classified and it took several hours and contact was made with the AF Intel at Beale and he and the parts were released. After that those of us that did some traveling were given a letter signed by the someone important that stated that we were attached to this 'secret project' and we could refuse to have parts of our luggage searched. I never had to use mine as most of the time I would travel on AF aircraft when I took software overseas.

Sometime in 1989 it was being strongly rumored that the SR71 was going to be shut down. I had some vacation accrued and feeling the shutdown would interfere with our plans, Jan and I took a vacation back to the states. We thought that when we returned to Okinawa it would be to pack up and leave for good. So prior to our vacation trip we sold the 2 vehicles we had purchased on arrival and felt that it would be less to do on our return to pack up.

Much to our surprise some support in Congress was evident to keep the program going so when Jan and I returned we had to repurchase a couple vehicles. We settled in for at least another year on Okinawa and took up diving, picture taking, developing and framing same in our spare time. The mission load was severely reduced so we had lots of time on our hands. Jan and I dove as much as we could and took several weekend trips to nearby islands for diving. Okinawa was an enjoyable assignment. The local food was great and the people were very kind to us.

On one of our diving trips Jan and I caught an octopus, which was a very prized delicacy for the native people and quite expensive. I gave it to the family in the house next door to our apartment and made a friend for life. Jan and I were prepared to spend several more years on Okinawa but it was not to be.

After the contract for the year was signed it was decided that the program would be shut down and we were to leave at the end of January 1990. We were told that the same weight restrictions that we came over would apply for our return. 1500 pounds of stuff would be the limit. I

remember George Adamo having to sell all his house hold goods. He had some beautiful furniture, a whole house full, I think most of it was rosewood. He set out to sell it because the cost of shipping it back to the states was too expensive. I, on the other hand had only the stuff that fit into a 576 square foot apartment to worry about. Jan wanted to take it all back and she got her wish. I thought since we would not have another opportunity to travel to Asia we would pay what ever price to have it shipped back.

I don't remember what moving company packed us up for shipping back to the states. I only remember being awed by the care they took in packing up our belongings. We had mailed quite a lot of small items and had not finished and the movers took over. They took a full day and carefully packed everything and I mean everything. They probably would have packed up our fingerprints if they could have found them. We sold one of the vehicles and gave the other one, a van we had outfitted for diving, to a dive friend. It had served us well.

Prior to leaving Okinawa I contacted a former SR71 tech rep, Alan Anderson still working for CSC, that had been moved to Kwajalein in the Marshall Islands. I had spent several months on Kwaj during 1961. I was in the antenna group at AIL and was asked to go to Kwaj to do some antenna pattern/power measurements on the Nike Zeus system. I had encouraged Alan to try to get an assignment to Kwaj when the CSC computers were replaced on the SR71 program. He had done several other CSC assignments to be able to get the Kwaj job and was enjoying his time on Kwaj.

I was able to contact him and get the proper paperwork for Jan and I to spend 5 days on Kwaj on our way back to the states. Our trip took us on a Contential Air Lines tour of the Pacific Area. We did stop for 3 days on Pohnpei and toured the island and then flew to Kwaj. On the evening we arrived, Alan met us at the terminal, drove us to our lodging (a mobile home) and told us he would call us later to give us time to walk (about 100 yards) to the beach to see a MIRV being shot from Vandenburg AFB for an anti-missile test. This test had been held up for several years and this was to be the night! He called and we went to the beach with quite a few other people and were told in which direction to look. It was a moonless night with no clouds and we watched the re-entry of at least 3 dummy warheads. When it was over, it was over in about 20 seconds, no instant replay or TV analysis, nothing, just fold up the lawn chair and go back to the lodging.

Alan had set Jan and I up with a Dive Master that also flew crews at rather low level to other islands surrounding the lagoon in the morning and evening. He was more that happy to have someone to dive with during the day and we spent time diving the leeward side of the atoll. Lots of sharks, fish and live coral, great diving. Unfortunately we had to leave and island hopped on a direct flight to Hawaii. You can't believe how small some of the airports and runways are on some of the islands.

A brief stop on Majuro turned out to be several hours due to a boarding passenger, some high ranking, very heavy, about 5 ft tall 350+ lbs, Majuro official being assisted up the rear stairway of the 727, dropping dead of a heart attack in the middle of the narrow aisle. He was going to go to Hawaii to see a heart specialist. It took 4 men a lot of time to remove him from the aisle and down the stairway. Needless to say, we were late arriving in Hawaii and missed our connection

to the states and couldn't get a taxi at 2am to go to a hotel in town, so we spent a night with our baggage, dive equipment and all, in the terminal to await an early morning flight to the states.

This is the end of part 9





Some never before published pictures of the SR71 recovered parts from 974 crash site.

During part 8 of this story I mentioned the SR71 that crashed north on the Philippine Islands. Here are a few pics of the parts recovered from approximately 140ft of water and brought back to Kadena for the crash investigators to go over.



EIP from crash. Ron salvaged some small parts for souvenirs.



Ampex recorder/playback machine for recording ELINT and Nav data.



Recovered parts from 974 crash. Some assembly required. These were laid out in hanger 1 of the 'T' hanger at Kadena.



**The guilty party....
The bulk of the investigation was by Pratt Whitney on the engine that threw compressor blades through the cowling while it came apart in flight.**

Some never before published pictures of the SR71 recovered parts from 974 crash site.

