BIG SAFARI
REUNION

12 OCTOBER 1990

LAS-ONTARIO IN THE MID-1950's

52 Years of Service

LAS-1990

Welcome to our first Big Safari Reunion! We are proud to hold the first session here at Ontario and are pleased you can join us.

This pamphlet presents a portion of the Det. 4 Big Safari History. Within our security constraints, it should jog a few memories of those of you who played such a key part in the success of the various projects accomplished by the Big Safari Team here at Ontario.

The Big Safari Program is almost 40 years old, and over that span has accomplished an amazing series of projects - all done quickly, without formal recognition or fanfare - and with very little paper! The Big Safari tradition of doing those "Special Tasks" is a true National Asset, and you, as part of that Big Safari Team share a part of that unique heritage. Personalities make a difference in this business. You always hear "Here's my home phone number" from the people like you who care. Welcome. Your presence continues our long tradition: Where it counts; When it counts!

VR, Kevin McNellis

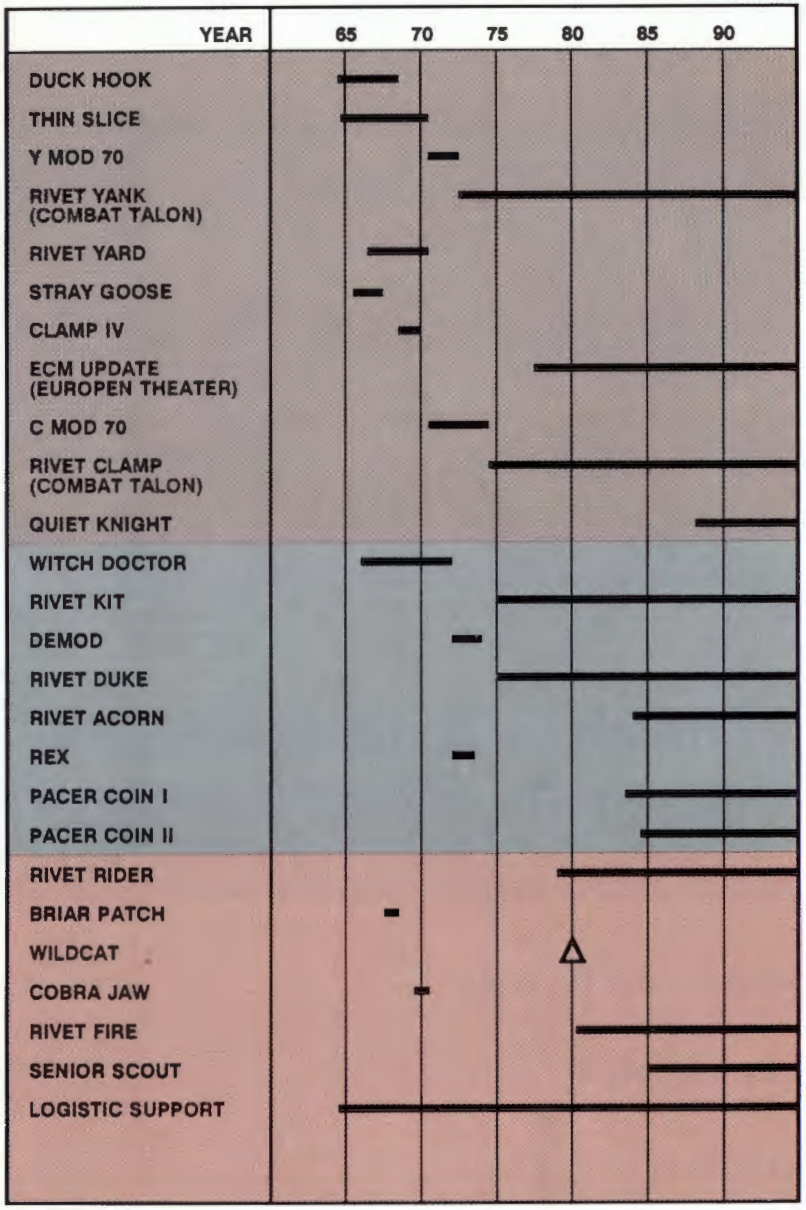
Kevin McNellis
Commander, Det. 4
2762d Logistics Squadron, Special
AFLC

FOREWORD

This booklet describes the various special projects that have been performed by the Lockheed Aircraft Service Company (LAS) and other subcontractors, at its Ontario, California facility, as part of the BIG SAFARI Program. Much of the information included in it was compiled from documentation prepared during the individual projects, while the balance was obtained from inputs from the people at LAS, the Air Force, and supporting contractors, both active and retired, who actually participated in them.

TABLE OF CONTENTS

DET 4 SPECIAL PROJECT EVOLUTION



INTRODUCTION

Lockheed Aircraft Service Company (LAS) was awarded its initial contract with AFLC (MAZ) in February 1964, to launch a long and successful business relationship as a contributor to the BIG SAFARI Program. The initial contract was for a program called DUCK HOOK, which required a quick reaction (QRC) modification to six (6) Special Operations C-123B aircraft. The group effort that began the original project was expected to last six months, but over the next 25 years was subsequently expanded, changed and matured to include the selection and installation of surveillance systems (photo, infrared (IR) and electronics), self protection systems (both IR and radar), and special communications jamming systems that are at the leading edge of todays technology.

Most of the projects conducted under the BIG SAFARI Program have included the modification and maintenance of Special Purpose aircraft, Photo, IR, Radar and Signals Reconnaissance Systems, Command Control and Communications Jamming Systems, Radar and Infrared Self Protection Jamming Systems, extensive signal processing technologies and advanced airborne computer systems. These projects have required the system and software design, fabrication, installation, integration, test, evolution, logistic support and long term system support and upgrading in more than 120 aircraft of the following types:

B-47	C-130A	C-130B	C-130H
C-97G	AC-130A	C-130E	EC-130H
EC-121S	DC-130A	EC-130E	LC-130R
C-123B	RC-130A	MC-130E	KC-135
MH-53			

PROGRAM OFFICE HISTORY

The BIG SAFARI Program Office was established at Lockheed Aircraft Service Company, Ontario, California, in January 1964, to accomplish Special Projects on a quick reaction basis. Similar program offices established at other contractors, such as General Dynamics, Fort Worth, TEMCO in Greenville, TX, and Ryan at San Diego, CA, had demonstrated that on site monitoring and specialized contracting arrangements were mandatory for the timely completion of Special Projects. These companies were previously under contract with the Air Force Logistics Command, formerly the Air Material Command.

Most of these efforts were combined under the BIG SAFARI Program under the authority of Air Force Regulation 66–22, on 8 March 1965. Early LAS projects involved the installation of off-the-shelf Government-Furnished equipment (GFE) avionics and systems in C–123B and C–130 special mission aircraft, principally aimed at self protection Radar Homing and Warning (RHAW) receivers and radar/missile jammers. As the years passed, more elaborate modifications were undertaken, with major efforts on COMBAT TALON, updated with the C and Y Mod 70 Projects, where sixteen C–130s were modified to a set of common baselines that lasted almost fifteen years.

These efforts were expanded in 1978 and 1980: first with the addition of the RIVET RIDER (CORONET SOLO) Project (a Psychological Warfare, high power jammer system) and then by the RIVET FIRE (COMPASS CALL) project, the first and only airborne C^3CM system in the USAF. In the late 80's these projects were augmented by the SENIOR SCOUT Project, a large SIGINT reconnaissance/collection system, and QUIET KNIGHT, a state-of-the-art modification improvement project for the COMBAT TALON avionics suite.

From its modest beginning, Detachment 4, 2762d Logistics Squadron Special (AFLC) has grown from a small detachment with an Air Force Captain as commander, to a full-sized detachment of over 30 people, commanded by a Lt Colonel, with responsibilities for program management, project engineering, procurement, quality control, logistics support and air crew support for all BIG SAFARI Projects.

BIG SAFARI HISTORY AT LAS

1. The BIG SAFARI projects started at LAS in January 1964, with an organization called a "LOO," for Logistic Operation, Ontario, under contracts with the Air Material Command (AMC), at Wright-Patterson Air Force Base, Ohio. The LOO shared its first commander, Capt Leo Talbot USAF, with a sister organization, LOR, located at Ryan Aeronautical Company, San Diego. Two other Logistic Operations also existed: the LOG, one located at the General Dynamics plant in Fort Worth, Texas; and the LOT, located at the E-Systems Greenville Division, at Greenville, Texas. The four organizations had been formed to contract and provide local on-site management for special, small quantity, very classified, quick reaction (QRC) projects.

2. In April, 1966, the LOO was changed to Detachment 4, 2762d Maintenance Squadron, Special (AFLC/MCMX).

3. In April, 1970, the parent squadron changed its reporting level and office symbol from AFLC/MCMX to AFLC/MAZ.

4. On 15 September 1972, the parent squadron again changed its name to the 2762d Logistics Squadron (Special), but the office symbol remained AFLC/MAZ.

5. On 21 February 1978, reflecting an elevation in its reporting level at the headquarters, its office symbol became AFLC/AZ, and remains so to this day.

6. From its inception, LAS formed a small cadre of people who had the necessary clearances, could keep their mouths shut about the work they were doing, were technically capable (for the more nonsophisticated jobs, anyway), were blessed with a "can-do" attitude, had the formal backing of the Lockheed Corporation, had quick access to any part of the corporation for technical help when needed, and who were not overly concerned with paperwork or sophisticated project tracking systems. Their motto was to get the job done NOW, at a reasonable cost to the Government.

7. Although that initial team has long since retired or moved on, and the technical scope of the projects has increased significantly (with its attendant and necessary administrative support, reports and paper work), that original can-do attitude still exists and is frequently called upon to do those last minute "specials" that crop up from time to time.

SKIP BOWLING AND COL GRIMES

BIG SAFARI HEADQUARTERS MANAGEMENT GENEALOGY AFLC/2762nd SQUADRON COMMANDERS

Late 1952	-	___1958	Mr. Roger Godfrey
___1958	-	Mar 1961	Maj Jim Lichtenfels
Jun 1961	-	Dec 1966	Lt Col Walt Raynor
Jan 1967	-	Apr 1970	Col Elsworth Powell
May 1970	-	Aug 1971	Col Roy Marsden
Sep 1971	-	Jul 1980	Col Pat O'Malley
Aug 1980	-	Apr 1985	Col Joe Stanton
May 1985	-	Aug 1990	Col Bill Grimes
Aug 1990	-	Present	Col Barry MacKean

DUCK HOOK

The first BIG SAFARI Project accomplished by LAS was DUCK HOOK, which involved the modification of six (6) C-123B aircraft. This project started in February 1964, with the sixth aircraft delivered in June 1964. The project required the installation of special receivers, ECM transmitters, a Doppler Navigation System and a special seven color camouflage paint scheme.

The initial modification included the installation of:

- An Applied Technology Inverse Repeater (AT IR) jammer
- An Applied Technology Buster Transmitter Receiver (BSTR)
- An EW console
- An APN 153/ASN-25 Doppler Navigation System
- A radio operators console
- A BC-348 MF-HF radio receiver
- An LAS model 109C flight recorder (modified)

In the Spring of 1966, and in July 1967, two further rounds of modifications added a new weather radar, several homing receivers and a tape recorder.

THIN SLICE

1. In support of a classified program in South East Asia called HEAVY CHAIN, an LAS study was initiated in September 1964 called THIN SLICE. This project resulted in a modification contract for the first two C-130E's (62-1843 and 63-7785) that were to eventually become the Combat Talons that we know today.

2. The original modifications added a surveillance capability (the AN/APR 25/26), a new Terrain Following Radar provided a means of delivering Special Logistics, and an EW suite provided for electronic self protection jamming.

3. Over the next year and a half, the following projects were added to these two aircraft:

Date	Project	Aircraft No.	Mods
9/64	THIN SLICE	843	APR-25/26
		785	Terrain Following Radar
5/65	BOA SIX	785	Added EW
9/65	BOA SIXTEEN	785	Added EW
11/65	Instrument Panel Mod	785	Revised Controls and Displays
5/66	BOA 45 (OUT YONDER)	785	Unknown

4. In August 1966, these two C-130E's were further modified and renamed RIVET YARD I. The THIN SLICE project was complete.

RIVET YARD I, RIVET YARD II, AND COMBAT TALON

HEAVY CHAIN

1. In continuing support of the HEAVY CHAIN operations, aircraft 843 and 785 were further modified during August 1966 in a project called RIVET YARD I. In September 1966, two additional C-130E's (64-0564 and 64-0565) were added to the HEAVY CHAIN operation and were modified in a project called RIVET YARD II. These four aircraft flew HEAVY CHAIN missions under the code name COMBAT SAM.

2. For the next six years, these four HEAVY CHAIN C-130E's underwent a number of different modifications, the most significant of which were:

Date	Modification
12/67	Fuel Tank Baffling
5/68	High Speed Low Level Aerial Delivery System (HSLLADS)
7/69E-4	Autopilot Pitch Channel Monitor System
10/69	11D-C Recorder Installation
3/70	Y Mod 70
9/71	System 56 (EW Self Protection System)
2/72	Forward Looking Infrared System (FLIR)

3. The HEAVY CHAIN operations were terminated in October 1972; their unit was disbanded; and the four RIVET YARD aircraft were returned to Ontario. The unique HEAVY CHAIN modifications were removed and a more standard COMBAT TALON suite was installed under a project named RIVET YANK. Upon completion of the RIVET YANK

modifications, these four MC-130E's were transferred to PACAF and replaced four MC-130E's (RIVET CLAMPS). These four RIVET CLAMPs were then returned to the CONUS for further modifications. The RIVET YANK COMBAT TALONS flew under the code name COMBAT SPEAR.

STRAY GOOSE/COMBAT TALON

In March, 1966, while the sensitive HEAVY CHAIN OPERATIONS were underway, using the initial two (2) RIVET YARD MC-130E's (843 and 785), a new project called STRAY GOOSE was initiated. STRAY GOOSE began with the input of four (4) C-130E's in Mar 1966, four (4) more in July 1966, and a further four (4) input in Jan 1967. All 12 aircraft were equipped with the Fulton Recovery System, were nomenclatured MC-130E's and were code named RIVET CLAMP. These 12 MC- 130E's were geographically subdivided into three operational units: COMBAT SPEAR covered PACAF, COMBAT ARROW covered USAFE, and COMBAT KNIFE covered CONUS operations. The 12 original tail numbers were: 523, 547, 551, 555, 558, 559, 561, 562, 563, 566, 567, and 568. Three (3) of these original 12 were lost over the years: 547 was shot down over North Viet Nam and crashed in LAOS on 9 December 1967; 563 was destroyed by a mortar attack on the ground at NHA TRANG on 25 November 1967 (both of these aircraft were assigned to the 15th Special Operations Squadron) and 558 was lost due to a mid-air collision with an F-102, near MYRTLE BEACH, SC, on 5 December 1972. In March 1968, to replace the two lost aircraft in South East Asia, two SWAP C-130E's (571 and 572) were added, with common avionics, but without the Fulton Recovery Systems installed.

COMBAT TALON

COMBAT TALON


BIG SAFARI PROGRAM
SPECIAL PROJECTS
DET 4 AND LAS

CORONET SOLO/ RIVET RIDER

CORONET SOLO

In 1967, LAS New York had been placed under contract by Sacramento AMA to design, develop and modify four EC-121s to become EC-121S's, Psychological Warfare Standoff Jamming Systems, code named CORONET SOLO. These aircraft were designed to operate in the HF/MF communication channels, and in the VHF and UHF TV channels. The HF and MF power amplifiers selected were commercial 10 Kw ground based systems, built by TMC of New York. Since all electronics on the aircraft operated at 60 Hz power, a 300 KVA 60 cycle generating system had to be installed. The VHF and UHF transmitters were built by a special ARINC group in Annapolis, MD.

These four EC-121S aircraft were flown and operated by the 193rd Tactical Electronic Warfare Group of the Pennsylvania National Guard, based at Harrisburg, PA. They flew a number of both psychological warfare missions and also occasionally flew standoff jamming support missions during the Vietnam war.

By the mid 1970's, the EC-121S aircraft were getting older, and more importantly, it was becoming extremely difficult to obtain 115/145 Aviation gasoline for them. These "Connies" were the last of the non-JP-4 aircraft flying in the USAF/ANG inventory.

Program support was transitioned to AFLC/MAZ during 1976, after it had been discovered that the CORONET SOLO had a tactical mission.

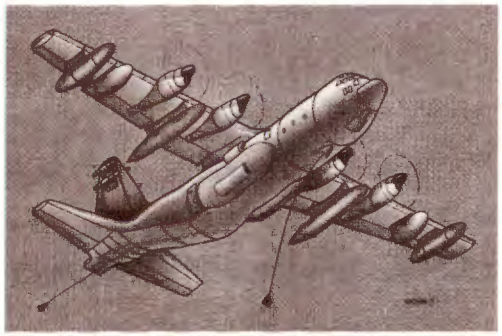
In December 1978, LAS was placed under contract to "Crossdeck" the CORONET SOLO hardware, with appropriate overhauls and modifications of GFE, into four C-130E aircraft, under a project called RIVET RIDER.

RIVET RIDER

The original Air Force plans were to use as much of the CORONET SOLO hardware as possible. Because of the many changes requested by the PANG, the plans had to be altered. The primary functions of the system (high power transmissions in the MF and HF bands, television transmissions over VHF and UHF channels) were not changed. The principle changes were:

- Primary Power
- Cooling System
- Transmitters
- Antennas

RIVET RIDER/ VOLANT SOLO FLOWN IN GRANADA JUST CAUSE



UPGRADE TO WWCTV

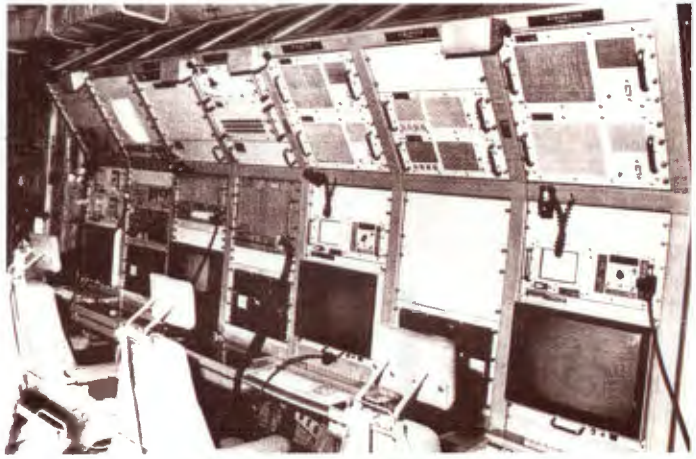
RIVET FIRE EVOLUTION (COMPASS CALL)

In November, 1977, AFLC/MAZ requested LAS and Sanders Associates to prepare a concept paper for a C-130 based Command Control Communications Countermeasures system (C^3CM).

The initial concept presented included the Sanders Compressive Receivers (developed previously under a Navy program), Sanders Analysis Receivers, a Contractor-Furnished Equipment (CFE) computer, a Sanders developed Exciter, CFE Power Amplifiers, and a series of LAS developed, externally mounted, large YAGI type antenna arrays, mounted on each wing tip and on both sides of the empennage. This concept was briefed to the Air Staff in early December 1977. Their reaction was that this program entailed considerable risk and would require development funding.

In late December 1977, while undergoing a labor strike, LAS worked with LASCG to try to develop a more suitable antenna design, particularly for the large Low Band antenna. During the Christmas break, the Chief Antenna designer at LASCG made a major design breakthrough, arriving essentially at the large Log Periodic antenna that is flying today.

In January 1978, ASD/RW was given the development task for a classified C^3CM program called COMPASS WIDGET. They proceeded to search the industry to see who had developed a suitable system for this application.



RIVET FIRE INTERIOR

LAS was asked to visit ASD/RW on 9 February 1978 and was briefed on the ASD concept of COMPASS WIDGET. ASD had heard LAS knew C-130's, but was considered a low technology company. LAS was asked what we perceived as the principle technical challenges to the program. LAS replied: the Low Band Antennas and the Software. ASD agreed. ASD was shown the preliminary antenna patterns obtained from LASCG the day before, and the tone of the meeting became much more friendly. LAS was asked to form a tiger team, prepare a concept and white paper, and come up with a price and a briefing, all to be presented to ASD/RW no later than the following Tuesday, 14 February 1978! ASD requested a program be put together for two prototype C-130s, to be equipped to fly within 36 months; to be followed by a one-year flight test phase; to be followed by a one year design refinement phase, to be followed by a production phase spanning another three years to include 19 more C-130s, plus the retrofit of the two test aircraft. The C^3CM hardware was to consist of most

RIVET FIRE OVER CAIRO

THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

23 JUN 1982

RESEARCH AND ENGINEERING

MEMORANDUM FOR ASSISTANT SECRETARY OF THE AIR FORCE (RD&L)

SUBJECT: Expeditious Fielding of Compass Call

References: (a) DepSecDef memo, subject: Acquisition Improvement Program, dated 30 April 1981

(b) USDRE memo, subject: Electronic Warfare Acquisition, detad 19 June 1981

Reference A cited the need and provided specific guidance to improve and shorten the acquisition time for our defense weapon systems. Reference B contained specific guidance to help execute selected, urgently needed electronic warfare programs more expeditiously. The deployment by the Air Force of the initial Compass Call platforms in two years compared to the long acquisition cycles experienced during the past decade is impressive and fully responsive to my direction.

I applaud the willingness of the Air Force to accept these high leverage platforms under terms tailored to provide urgently needed military operational capability very quickly. I anticipate there will be some initial problems that will be solved over the time but these are more than offset by the military potential the Compass Call platforms provide. The country has been well served by your flexible and responsive management.

James P. Wade, Jr.
Principal Deputy Under Secretary of
Defense for Research & Engineering

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.

REPLY TO ATTN OF: RD

SUBJECT: COMPASS CALL

8 JUL 1982

TO: AFLC/CV

1. I am pleased to pass on the attached memorandum from the Principal Deputy Under Secretary of Defense for Research and Engineering concerning the expeditious deployment of the initial COMPASS CALL platform. To field a new Air Force weapon system in two years is an almost unheard-of accomplishment, particularly in peacetime.

2. As Dr. Wade points out, there will inevitably be problem areas requiring corrections. However, an integral part of this program from the beginning was a preplanned product improvement (P^3I) program in recognition of these potential problems. This concept of rapidly fielding a baseline capability while simultaneously pursuing a P^3I effort is now a proven concept that we intend to appropriately apply to other programs in the future.

3. The men and women of your command who helped field the baseline COMPASS CALL aircraft and continue to work on the P^3I projects have served as pioneers in demonstrating this rapid acquisition concept. Please pass on my appreciation to them for their superior performance.

KELLY H. BURKE, Lt Gen, USAF
DCS/Research, Development
and Acquisition

1 Atch
Principal Deputy Under Secretary of
Defense for Research and Engineering
Memorandum, 23 June 1982

elements from the GTE Sylvania MLQ-34 TACJAM for the Low and Mid Bands, and the Magnavox Beacon Link Jammer (BLINK) for the High Bands. LAS was asked to quote as Prime, Associate, or Sub-Contractor. The driving requirement was to have a briefing ready for the ASD Council by 15 February 1978.

LAS met the deadline with a fully priced package, with a full set of viewgraphs. A final recommendation from that proposal was that the Air Force should consider funding a short program definition phase, to help solidify program requirements and to establish an agreed to electromagnetic environment for the COMPASS WIDGET to operate against.

LAS was awarded a $600K ASD study contract in early July 1978 to define the COMPASS WIDGET requirements and to develop a suitable electromagnetic environment. The intent of the study was to be prepared to support a series of briefings to the Air Staff during October 1978.

Shortly after the ASD contract award to LAS, AFLC/MAZ requested an identical, parallel exercise, for a modification program to field a C^3CM system, but under MAZ rules. The task was to procure off the shelf hardware and provide systems integration and software for five (5) C-130s. This effort was quickly expanded to define a program for a prototype plus nine (9) production C-130s. This second program became the framework for a series of joint ASD/AZ briefings, which by the end of October were presented all the way to the Chief of Staff. At this point, with no funding in the budget, the program appeared to have been killed.

In mid-December 1978, AZ contracted LAS to prepare a system specification and Statement of Work for a totally new approach for an integrated C^3CM system called RIVET FIRE, with LAS procuring tailored subsystems, developing the software to tie them together, and performing the systems integration. A bidders briefing was held at LAS on 22 January 1979, with proposals for subsystem hardware due at LAS by the close of business, 8 February 1979 - just over two weeks! Funding delays sliped the program just over one year.

RIVET FIRE

On 14 February 1980, exactly two years to the day from the original briefing to ASD/RW, LAS was placed under an AZ contract for COMPASS CALL to provide the following:

2 EC-130H aircraft

1 System Support Facility

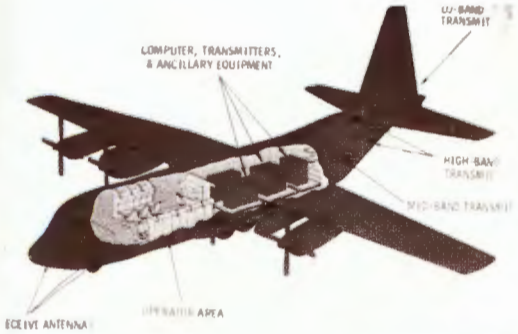
1 Set of Spares

The contract required aircraft rollout in 19-1/2 months with delivery scheduled for 22 months ARO. The actual delivery of the first RIVET FIRE, AFLCs project name, came in March 1982, 25 months from contract award.

Follow-on awards increased the original program to ten aircraft, which were subsequently expanded to a total of 16 aircraft.

RIVET FIRE/COMPASS CALL was the only operational C^3CM System in operation with the Air Force today.

RIVET FIRE/COMPASS CALL was also a significant departure point for LAS. Prior to this project, most projects at LAS were not highly sophisticated, integrated, computer based, heavily software structured, weapon systems with extensive systems engineering content. LAS had the reputation of being a good QRC, "rack-em, stack-em" low technology contractor. RIVET FIRE/COMPASS CALL forced a total culture change at LAS for the future.



RIVET FIRE

QUIET KNIGHT

- QUIET KNIGHT I Study 24 June 1988–31 August 1988
- QUIET KNIGHT I 07 April 1989–09 December 1990
- QUIET KNIGHT II Study 16 May 1990–30 October 1990

QUIET KNIGHT is a Balanced Technology Initiative (BTI) program, funded through Wright Research and Development Center, Avionics Laboratory (WRDC/AAAS). Through a memorandum of Agreement, WRDC and AFLC/AZ Special Projects agreed to comanage the program with LAS, as a prime contractor.

QUIET KNIGHT's objective is to demonstrate an avionics system that promises an improved penetration capability for special operations aircraft, minimizing RF emissions and improved terrain masking/route replanning to avoid detection. The program uses a high throughput/mass storage data processor to perform multiple functions:

- Blends LPI (Low Probability of Intercept) RF radar with DTED data for TF/TA.
- Integrated GPS, INS and DTED for SITAN navigation
- Provides enroute replanning in response to "pop-up" threats.
- Produces advanced multi-mode display scheme.

HTTB

SENIOR SCOUT

SENIOR SCOUT HISTORY

1 October 1984 – LAS brief Advent Systems, Inc., of Mountain View, CA, on LAS capabilities. The program at that time was called Rapidly Deployable Mobile SIGINT System (RDMSS). Advent was conducting a feasibility study for the Air Staff. RDMSS consisted of an airborne and a ground system and at this juncture, was fairly "blue sky."

November 1984 – LAS informally teamed with California Microwave, Inc. (CMI). Engineers from Advanced Systems were doing the conceptual work. The concept involved building the RDMSS to function most of the time on Pennsylvania Air National Guard (PANG) aircraft, which would be optimized for RDMSS missions. Equipment would also be available to put the RDMSS on a "vanilla" C-130.

Lockheed-Georgia's Samson pod was an integral part of the concept, but was not included in the final design. The pod would contain receive antennas and data would be transmitted into the aircraft using a laser data link. Before the end of the year, CMI and LAS had agreed to pursue separate courses.

8 December 1985 – Det. 4 authorized LAS to conduct a Requirements Definition Study for the Advanced Tactical SIGINT System (ATSS). It also supported the first meeting involving Det. 4, AZ, ESC, and LAS.

In June 1986, LAS was placed on contract to do the engineering for the project, then renamed SENIOR SCOUT.

28 January 1987 – LAS was placed in contract for the design, procurement, fabrication, assembly, test and documentation of SENIOR SCOUT No. 1 and the Engineering Support Facility for SENIOR SCOUT.

1976–1990 - UARRSI PROJECT

The Universal Aerial Refueling Receptacle Slipway Installation was placed on contract on 4 August 1976. The project required the design and installation of a covert (from ground observation) refueling capability to be installed on a Combat Talon MC–130E, that would be compatible with the KC–135 boom refueling system. The design had to be compatible with all versions of C–130s supported by BIG SAFARI. An external bump/housing, as on the C–141 design, was not desired.

On 10 February 1977, the UARRSI had been designed, installed, tested and flew an operational SEAL team drop in the Philippines, after completing a 27 hour 45 minute flight nonstop from NAS North Island!

In the subsequent 13 years, LAS has successfully installed the UARRSI on 57 C–130s for AZ and 18 for IBM on Combat Talon II C– 130Hs, for a total of 75 installs completed/underway to date. A four ship UARRSI speedline is currently on contract.

PROJECT 46

PROJECT 46 is a development program to upgrade the existing 1– and 2–man Surface–to–Air Recovery (STAR) system to a 6–man (1500 lb.) capability. The effort began in April 1983, at the Robert Fulton Company, as a study program to determine the feasibility of such a system. LAS became involved in December 1983, by responding to a Request For Proposal (RFP) from Fulton to evaluate the aircraft modification requirements.

In September 1984, LAS began design (with Fulton on subcontract to LAS) of the system to accomplish the 6–man pickup. Aircraft 64–0561 (which has begun PDM at LAS in July 1984) was committed to the modification program in February 1985. Design, fabrication and installation of the aircraft structural modifications took much longer than expected. Aircraft 551 finally began flight tests in March 1986, only to run a test series with unreliable (Fulton) Skyanchor operation. After equipment shakedown tests, a sequential series of 58 successful recoveries would be required to qualify (man–rate) the system. Changes in the Skyanchor hub shape; trigger; spring; and wind–up motor ran through a series of on–again/off–again modifications and tests until May 1988. Just when it appeared the Skyanchor was working reliably, the nose radome was shattered by a 1500 pound recovery in June 1988 (after having completed 50 successful recoveries)*.

DET. 4 GENEALOGY

Jan 1964	-Jun 1965	Capt Leo Talbot*
Jul 1965	- Aug 1965	Maj Charles Neundorf
Sep 1965	- Jul 1968	Lt Col Don Black
Jul 1968	- Aug 1968	Lt Col Harry Coates
Aug 1968	- Jun 1972	Lt Col C.N. Powell
Jun 1972	- Nov 1975	Lt Col Rob Dempsey
Nov 1975	- Mar 1979	Lt Col Gary Dick
Mar 1979	- Nov 1980	Lt Col Ken Oliver
Nov 1980	- Jan 1983	Lt Col Phil Dodson
Jan 1983	- Jan 1985	Lt Col Ken Belden
Jan 1985	- May 1987	Lt Col Dave Roderick
May 1987	- Jul 1989	Lt Col Joe Renaud
Jul 1989	- Jan 1990	Lt Col Larry Edwards
Feb 1990	- Present	Lt Col Kevin McNellis

*Capt Talbot divided his time between LOR and L00.

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Chow, Andy
Chow, Everett
Ciemiewicz, Yon
Cleland, Ed
Coleman, Dick
Cooper, Bill
Cosme, Mario
Crawford, Bill
Czeschin, Ed
Degidio, Bob
Dillard, Leon
Diorio, John
Dodson, Quaite
Drohan, John
Duboi, Bob
Dupre, Bo
Eagle, John
Evans, Bill
Faranal, Danny
Freire, Ed
Frias, Sam
Fullerton, Ken
Galvin, Sy
Gatlin, Bill
Gardner, Bob
Gerbig, Bo
Giles, Loren
Glaser, Dick
Gorden, Ken
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Martin, Lowell
McLellan, John
McNellis, Kevin
Miles, N.B. (Bud)
Montereth, Matt
Moran, John
Morgan, George
Nicholls, Don
Nix, Dwayne
O'Hare, Bill
Oliver, Ken
Parker, Fred
Paul, Joe
Philbrick, Dale
Phillips, Charlie
Pierce, Glen
Sanderman, Karl
Scarborough, T.H.
Scheaffer, John
Schmidt, Joe
Schneck, Phil
Rice, Steve
Reil, Tony
Proux, Gene
Scholl, George
Selberg, Ron
Smith, Gordon
Taggart, Mike
Tathum, Glenn
Thomas, Dewey
Throp, John
Trost, Fred
Tunnell, Dick
Tyson, Ted
White, Claude
Willette, Jack
Willis, Floyd

"TALONS OVER GRENADA"