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## The Judy Porter Collection

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The following photographs were taken in 1973, by Judy Porter, to illustrate a booklet entitled **THE FACILITIES AND CAPABILITIES OF AIR AMERICA, INC., AT UDORN, THAILAND**. The text was compiled by Jackson L. Forney, Vice President, Technical Services, Air America, Incorporated.

A broader context for the report will be provided in an oral history interview to be conducted in the near future. All photos are thumb-nailed for easier loading.



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Picture 091: Aerial photograph of the Air America facilities within the Royal Thai Air Force Base, Udorn, Thailand.

### Administration and Operation

In addition to the wealth of Technical Services capability at Udorn, a number of other valuable support assets have been developed. Some of these, with brief highlights, are listed below:

#### Administration

Executive management of the base is provided by the office of the Vice President Northern Thailand. In addition, Personnel, Finance, and Medical departments provide necessary administration and protection for over 2,000 employees and their dependents. A U. S. standard school (grades K-12) staffed for over 200 pupils is operated by Air America and is located on the base. Similarly, dining and limited recreational facilities have been established because of the limited availability of these accommodations in the immediate vicinity.

#### Operations Department (Ground Support)

Along with radio and other facilities to flight follow 70 or more aircraft, the Flight Operations Department is organized to provide ground transportation, aircraft dispatch, a flight information center, weather information, and other essential services to support any potential Customer's flying operations.

The Communication Center provides for local distribution of messages and other correspondence and is linked via TELEX to many major points in Asia and the U. S. A.

#### Operations Training

The Operations Training Department, using air conditioned facilities at Udorn provides academic and simulated instrument training to Company pilots of several nationalities. With necessary contractual coverage, similar training is being extended to other than Company air crew members.

Flying training is conducted by instructor pilots in particular aircraft in conjunction with classroom training in order to qualify pilots, flight mechanics, and air freight delivery specialists. Instructor pilots are available for many different aircraft; a few are C-123, DHC-4, DHC-6, PC-6, C-46, C-47, C8-47C, UH-18, DH-34, S-58T, H-500, Bell 47G and other military and civilian aircraft.

### Base Security/Protection

Fire protection, base security and traffic control, and the prevention of smuggling and drugs trafficking are provided through efficient, well-equipped Fire and Security Departments.

### Terminal Service

The passenger terminal and traffic building has the facilities for handling passengers and cargo for all aircraft operating under the current contracts and is able to provide turn-around support for transient aircraft on short notice. It has demonstrated its capacity for operating under emergency conditions and under a greatly expanded work load.

### Club and School

Club facilities include a dining room, lounge and bar, soda fountain, auditorium, and a swimming pool.

In order to attract and retain the best flying, maintenance, and administrative talent available in performance of contract obligations, it is necessary to provide facilities for foreign families.

The Air America School offers dependent schooling through the 12th grade and has a current enrollment of over 200 students. A principal and sixteen teachers constitutes school staffing. All are certified consistent with US standards and the school is listed for accreditation.



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Picture 092: Club Rendezvous with swimming pool in background, at Air America Compound, Royal Thai Air Force Base, Udorn, Thailand.



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Picture 093: Students in class at the Air America School, Udorn, Thailand.



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Picture 094: Air America School Teacher, Sherman Rosenburg with students in classroom experiment at Udorn, Thailand.

### Technical Services

Air America has, under USG contract F04606-71-C-0002 and antecedent contracts, developed technical skills and facilities at Udorn capable of supporting fully over 20 types of helicopter and fixed-wing aircraft. Well-trained and experienced technicians and supervisors, many of them USFAA licensed, have undertaken successfully a wide range of maintenance operations, including IRAN and scheduled periodic inspections, major modifications, recovery and complete rebuild of crashed or damage aircraft, complete rewiring and rework of interiors, and repair and overhaul of aircraft components, instruments and avionics equipment.

The U.S. Federal Aviation Administration has recently issued Air Agency Certificate Number 65I-2F for an approved repair station to Air America at Udorn with authorized satellite repair stations at Vientiane, Laos and Saigon, South Vietnam. This rating authorizes maintenance, repair or alterations to specified categories of aircraft radio equipment.

The established facilities, equipment, and reservoir of experience and skills along with administrative and base support organization make taking on new aircraft work relatively easy.

An average of over 125,000 man-hours of skilled labor are currently expended each month.

#### Aircraft Maintenance

Well-trained and experienced mechanics, technicians, and supervisors many of them USFAA licensed, have undertaken successfully a wide range of aircraft maintenance including IRAN and scheduled periodic inspections, major aircraft and system modifications and TCTO accomplishment, recovery and complete rebuild of crashed or damaged aircraft, complete rewiring and rework of interiors, and repair and overhaul of aircraft components, instruments and avionics equipment

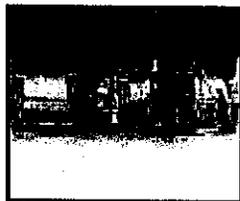
In addition to maintaining aircraft operated by Air America in performance of contract flying, a large volume of major contract maintenance work on T-28, 01, U-17, C-47, C-46, UH-34, and other type aircraft has been undertaken in support of flying performed by other organizations. In 1972, for example, 1,501,124 direct skilled man-hours were expended in fulfilling the total contract maintenance obligation; 687,227 of these or about 46% were expended in direct support of USAF and RLA flying, or in performance of other non-flying contract requirements.

Most of the special repair fixtures, jigs and much of the equipment used at Udorn were designed and fabricated locally to improve quality, efficiency, and worker safety. Hangars and ramps are well-lighted in order that maintenance operations can be carried out round-the-clock. Special supply order points are located within maintenance areas to speed ordering and delivery of parts and reduce time lost by skilled mechanics obtaining parts.

Aircraft damage repairs involving rebuild of up to 75% of structure, 100% wiring replacement, and manufacture of special structural fittings and tooling has been carried out routinely.

The ability to react promptly and capably on short notice has proven especially useful when major modifications to aircraft for special operational requirements have been necessary. Special avionics and other electronics installations have been engineered and placed in service on short notice. Major modifications to install aerial cameras, long range fuel systems, special cargo drop equipment and delivery systems, high density seating systems, ejection seats, and special light systems are just a few of the changes carried out almost daily at Customer request.

The capability to provide routine and emergency maintenance and aircraft recoveries at remote locations in Thailand and Laos, including special helicopter sling equipment and expertise, has been developed and polished through over 10 years of application. Supervisors and mechanics are able to respond promptly to unanticipated requirements at remote locations.



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Picture 095: A T-28D (foreground) and a U-17B are being jig rebuilt. The repair jigs -- designed and constructed at Udorn -- insure that correct alignment of structure, and engine, wing and empennage attach point is maintained. In the background, a T-28D wing is jigged for repair.



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Picture 096: Over the years, dozens of aircraft have been rebuilt using these and similar fixtures.

These UH 34Ds are being reconstructed for delivery to the Indonesian Air Force from the remains of UH-34s of various models. A total of fourteen aircraft are being rebuilt under this program. The alignment/repair fixtures shown with the aircraft at the far left was designed and constructed at Udom. The aircraft to the right is undergoing final assembly and preparation for painting.



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Picture 097: A CH-47C "Chinook" is undergoing engine change and has been opened up for Periodic Inspection.



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Picture 098: A Fairchild C-123K "Provider" undergoes a 100 hours Phase Inspection. The power plant, wing, and tail stands shown were designed to speed maintenance and improve worker safety.



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Picture 099: A Volpar Turbo Beech-18 undergoes major landing gear repairs and a 100 hour inspection. The Volpar conversion (turboprop engines and tricycle gear) was carried out at Air Asia in Tainan, Taiwan.

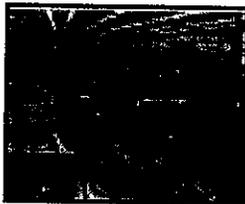
### Aircraft Shops

Extensive aircraft shops capability has been developed to help overcome difficulties inherent to being "at the end of the supply pipeline" and to keep costs and required on-hand spares inventories at a minimum. Many components used never leave Udom, having been cycled through the local shops for overhaul or repair as necessary, speeding return to service and eliminating the need (and costs) associated with returning them to remote major depots for inspection and repair. In a typical month over 6,000 items are cycled through the shops.

A great quantity and variety of U. S. Government-supplied equipment and tooling is in place. This capital investment coupled with technical management and work skills developed over the years has produced a capability to carry out highly complex work with quality efficiency and speed believed to be unique in this part of Asia.

Aside from component repairs, the shops are capable of manufacturing structural parts, fittings, and other minor items where necessary and by doing so have on many occasions speeded release of aircraft that would otherwise have been deadlined for long periods. A small but fairly complete machine shop is available. Metal fabrication facilities include lathes, a milling machine, shapers, grinders, planish and shrinking equipment, heat-treat ovens for steel and aluminum, heli-arc, oxy-acetylene and arc welding equipment, and all necessary riveting tooling.

Other shop capabilities include aircraft electrical and instruments, a paint strip, cleaning and corrosion control shop, complete paint spray and brush facilities, cable manufacturing and testing machinery, oil cooler cleaning facilities, a large hydraulic component test bench, high pressure hose manufacturing and testing equipment, a dope, fabric and fiberglass shop, and through the quality control section, extensive non-destructive testing, including X-Ray, capability.



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Picture 100: Aircraft Shops



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Picture 101: A Bell 205 is shown undergoing a heavy (Number 4A) service. The aircraft had been disassembled for detailed inspection of major structure, wiring, flight control, and rotor drive systems. In the background a Sikorsky S-58T is serviced. The S-58T fleet was manufactured at Udon from UH-34 airframes utilizing Sikorsky-provided Pratt and Whitney Twin-Pac turbo shaft power plant and gearbox conversion kits.



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Picture 102: Using cold dip, hot dip, and vapor degreasing as well as air blast glass bead equipment, the Cleaning shop strips all incoming reparable parts of paint, dirt, and carbon in order that proper inspection can be carried out. Corrosion control treatment of various metals is accomplished by use of dip tanks using Dichromate, chrome trioxide, alodine or chromic acid regimens as appropriate. A laundry service for dining rooms and transient quarters is provided for with heavy-duty washing and drying machines.



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Picture 103: An R2800-99W (C-123) power plant in buildup. Other engines handled by our engine shop are R1820-84C (UH-34), R1820-86A (T-28), 0-470-11 (01A), 10-520-D (U17), PT6T-3 (S-58T), and 0-470-15 (01F).



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Picture 104: Mechanics use the Sikorsky test bench to final check UH-34D and S-58T ASE (Automatic Stabilization Equipment) components following shop repairs.



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Picture 105: Because of high noise levels, the magneto test stand, aircraft generator stand, and locally-designed generator run-in stands are isolated from other shops in a sound-proof room.



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Picture 106: Four-bladed UH-34D and two-bladed UH-1H tail rotors undergo final balancing following repair.



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Picture 107: A T-28 hydromatic propeller is tested on a portable hydraulic propeller bench. In the background, a mechanic bench-tests a T-28 Hamilton Standard propeller governor.



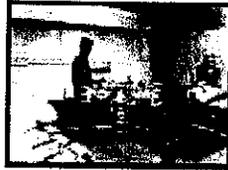
© Judy Porter 1974

Picture 108: Welding shop equipment includes inert gas, electric, and oxy-acetylene welding tooling as well as electronically-controlled heat-treat ovens.



© Judy Porter 1974

Picture 109: A mechanic carries out milling operations in manufacturing an aircraft structural part. The Machine Shop equipment includes precision lathes, a hydraulic multi-press, a shaper, drilling machines, and tool grinders.



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Picture 110: A UH-34D main rotor head is repainted following inspection and repair. This auxiliary shop uses airless and air spray paint equipment to apply a variety of protective paint systems on aircraft, components, and equipment. In addition, repairs to fiberglass and honeycomb structure, and to fabric covered flight control surfaces are carried out regularly.

### Electronics

The Electronics Section maintains all airborne communication and navigation equipment used in Air America-operated as well as USAF and RLAF aircraft. In a typical month, over 2,000 separate items are cycled through this section. Full shop repair and test capability is available for a great variety of UHF, VHF, HF, FM, VOR, ILS, IFF, and TACAN equipment and accessories.

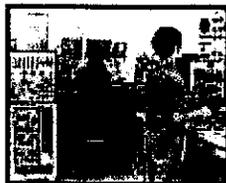
Additionally, the Electronics Section is responsible for major maintenance on four remote AN/TRN TACAN station units and associated power plants in Laos and Cambodia; the Udorn portion of the telex link, and for portions of ground communications radio links and shop repair of COMNET equipment. Telephone switchboard and instruments repair is within the shop's capability.

Shop equipment and personnel trained and qualified in maintenance of the SPR-5 Terrain Following Radar, including AN/APN-153 Doppler and AN/APN-167 Radar altimeter systems, are available. LORAN Airborne Modular Systems (LAMS) and Lightweight Airborne Warning System (LAWS) are maintained.



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Picture 111: A technician bench checks a SPR-5 Terrain Following Radar system in the shop. Capability for check and repair of AN/APN-153 Doppler and AN/APN-167 radar altimeters as well as LORAN "C" (LAMS) and LAWS equipment has been developed.



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Picture 112: A mechanic checks a TACAN set using bench test equipment (Oscilloscope Type 531). The young Thai lady repairing an intercom set in the background is our first female electronics mechanic and has been employed since October 10, 1972.

## Technical Training

Technical Training capabilities, including 12 air-conditioned classrooms, have been developed to provide training in basic technical skills to new employees, to upgrade employees in new equipment and aircraft, and To keep staff current on old and new requirements. A wealth of training aid material in the form of slides, films, course outlines, study guides, and cut-a-way demonstration models is available.

The major technical trades and skills taught include basic aircraft and engine mechanics, sheet metal, electronics, electrical and radio (airborne and ground), technical supervision, basic quality control, storekeeper (supply), basic carpentry, masonry, generator overhaul, and other general maintenance skills. In addition, a multitude of "short courses" dealing with special subjects or new aircraft and equipment, ground safety, first aid, fire fighting, and other subjects are taught.

Through basic and advanced technical training at Udom, over 700 skilled Thai employees have been upgraded to professional levels of accomplishment in the various fields of aviation maintenance. Approximately half of these employees have undergone additional specialty training, including supervisor courses, to continue their education in the aviation field and to prepare them to take on more responsible jobs within the facility. Great cost savings have been realized through reductions in the required proportion of TCN and American staff, and it is believed a significant contribution to the development of the Thai Civil Aviation industry has resulted as a secondary benefit.

The effectiveness of the technical training staff and facilities can be illustrated best by reviewing overall staffing changes over the years. In 1961, virtually all skilled positions in support of contract operations in Thailand were filled by importing American or TCN personnel at relatively high cost. This condition continued into 1964 despite efforts to recruit qualified Thai personnel who had gained experience in the Thai Air Force or via the minuscule Thai airline industry and the Thai Civil Aviation Training Center. With the start of technical training at Udom, a drastic change in the proportion of Thai to high-cost American and TCN skilled labor began. Today, of over 1,000 skilled employees used at Udom in aircraft maintenance, general maintenance, supply, and quality control operations, over 800 are Thai. Overall the ratio of Thai to American or TCNs in the Air America technical departments is 85.62%.

The training staff composition also serves to reflect effectiveness of past training programs. In the early stages of development, up to 7 Americans and TCNs served as staff and instructors. Currently, the Technical Training staff consists of one American Superintendent and 10 Thai instructors, many of whom received most or part of their instructor training with Air America. The facility is capable of absorbing additional instructors should the need arise as a result of an increase in student enrollment.

Technical training for up to 200 RLAf students at a time can be undertaken with contractual coverage.



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Picture 113: The Technical Training Section uses a wealth of up-to-date instructional material in training "fledgling" as well as "journeymen" mechanics. Here a class is given instruction on the cut-a-way R2800-99W (C-23) power plant. Cut-a-way models of power plants, gearboxes, rotor systems, and blades, and other components are available. Most were constructed at Udom.



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Picture 114: Simulated instrument training in basic, advanced and cross-country instrument flying; and ADF, VOR, ILS, and GCA procedures can be carried out for student pilots in this GAT-1 Flight and Navigation Trainer. Proficiency and refresher instrument training programs are also developed for experienced pilots.



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Picture 115: Additional simulated instrument training.

### Supply

Covered supply warehousing of 48,000 square feet capable of shelving and segregating some 84,000 line items of aircraft parts are established. Outside storage and POL areas totaling 72,000 square feet are available. The efficient stock control section maintains control of ordering, stock levels, and complete researching cross-index files.

The purchasing section buys up to \$120,000 worth of supplies locally and \$140,000 worth of supplies through GSA or BUSH channels annually. Through Air America's world-wide telex link, and utilizing services of Air America's North Hollywood offices, the Supply department is in touch with American and Far East suppliers on a daily basis.

The Supply Shipping Section is accustomed to handling, crating, and documenting some 160 tons of spare parts and other cargo per month.

Direct supply support of RLAF T-28 and UH-34 aircraft is provided by Udorn through NORS-G requisitioning and indirect parts support results from the heavy service and IRAN performed on these aircraft at Udorn.



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Picture 116: Air America mechanics, flight mechanics, and technicians own their own hand tools. Supply's Tool Sales Section stocks over 400 items for initial or replacement purchases. Provision of hand tools for other contract requirements, such as students in training, have been arranged in the past.



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Picture 117: Smaller parts are segregated in coded shelf bins as shown. The card locator deck being used on the left (under stairs) identifies each part and its location in the warehouses or covered storage areas.



© Judy Porter 1974

Picture 118: The Shipping Section packs, crates, documents, and ships over 160 tons of material each month.

## General Maintenance

In first designing and overseeing construction of and since maintaining some \$4,000,000 in facilities, equipment, and shops at Udorn, Air America has developed trade, administration, and management skills sufficient to staff a small town. All necessary services from housekeeping and collecting the garbage, maintaining a sewage system and treatment plant, providing all necessary utilities, and carrying out routine building and road repairs, to designing and overseeing major construction of buildings, utilities, and facilities are provided for.

The General Maintenance Section operates and maintains a 3,000 KW powerhouse and power distribution system delivering up to 750,000 kilowatt hours of electricity per month to this U. S. Government facility and to other users.

In February 1973, a typical month, the Air America-operated water plant took in, processed, and distributed under pressure a total of 3,748,382 gallons of potable and industrial water. More than 50% of this production is delivered to other users.

Over 470 tons of in-house and other user air conditioning equipment is maintained and repaired by the air conditioning shop.

A generator overhaul and repair shop operates in support of the COMNET communication network in Laos as well as accepting other user inputs through the Air Force Plant Office. Similarly, both powered and non-powered AGE is repaired and overhauled at Udorn.

In maintaining the 101 acres of plant facilities, comprehensive skills and shops have been developed in electrical, plumbing, masonry, air conditioning, paint, and carpentry areas.



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Picture 119: Raw water enters the water processing plant settling tanks via a system of aerating cascades.



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Picture 120: Six 500 KW capacity White Superior (Model 40) diesel generator sets supply up to 750,000 kilowatt hours of power per month to Air America facilities and to other users.



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Picture 121: In the General maintenance repair shops, a wide variety of powered and non-powered Aerospace Ground Equipment (AGE) and ground power generators are inspected, repaired, and overhauled. The large Continental power plant (foreground) is used with an MD-3 aircraft ground generator set. In the right background, mechanics are overhauling the engine from a 10KW Onan generator set used on COMNET sites. The shops are equipped with modern tooling and test equipment such as the Snap-On Anal-O-Scope set shown in the left background and the cylinder boring machine being used to correct cylinder block defects in left foreground.



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Picture 122: The Stock Control Section of Supply manages over 64,00 line items of parts. Here multipurpose parts cards are being processed by an IBM model 83 sorter to determine shipping status. IBM model 029 card punch equipment (not shown) is used in ordering parts via the US Air Force Auto din system. A complete supply technical reference library is maintained.

### Maintenance Control

The Quality Control section provides an all-important cross-check on quality and has final inspection authority over major aircraft and component work. A quality analysis group reviews log books and inspector discrepancies to detect adverse trends and develops necessary inspection and work procedures. Complete non-destructive inspection facilities, including magnaflux, zygló, and X-Ray are available.

A small but excellent engineering staff designs and oversees aircraft repairs and modifications, maintains and cross-checks weight and balance records, and carries out special reliability studies. Many of the major modifications and repairs designed have required USFAA approval via Form 337. These are approved in most cases by Technical Services supervisors holding Inspection Authorization from the USFAA.

Planning and Production Control sections maintain important aircraft historical and time-controlled component records, scheduled inspections, and establish control and work priorities for aircraft undergoing inspection and repair and for components input to the shops to insure timely return to service.

Comprehensive technical libraries provide up-to-date civil and contract technical and supply publications for the many types of equipment, facilities, and aircraft maintained. Publication facilities using XEROX, photo-dry, Gestetner, and Ditto equipment are available.



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Picture 123: In the non-destructive inspection shop, a technician using magnetic particle inspection equipment checks a T-28 engine mount for cracks while a supervisor inspects X-Ray films. In addition, fluorescent and die penetrant, chemical metal analysis, eddy current, fluid contaminant, and fabric test equipment are available.



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Picture 124: Sperry Model 160 field X-ray equipment is being used to film the elliptical spar cap on this Volpar Turbo Beech-18 in compliance with USFAA Airworthiness Directives 72-20-5 and 67-8-2. The ability to "see inside" tubular welded assemblies and other structures can mean great savings in costs and, most important, improvement in quality and safety.



© Judy Porter 1974

Picture 125: The Aircraft Engineering Section designs repairs and modifications using microfilm and other technical references, conducts weight and balance checks and maintains associated records, initiates material substitution and manufacturing specifications, and carries out engineering reliability studies.



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Picture 126: The Planning Section's status boards portray latest inspection status of aircraft and power plants. Detailed historical and component time control records are maintained.

### Flight Operations

As the most prominent or "most seen" aspect of Air America's work, flying operations would seem to need little in the way of introduction or explanation. However, to adequately explain the scope of these operations and the related support activities it is appropriate to mention that during fiscal year '72 more than 93,000 hours were flown in a wide variety of Udon-based aircraft. Much of this flying was carried out over rugged terrain which, because of a lack of adequate navigational aids, ill-prepared helicopter landing pads and airfields, and the presence of an actively hostile force, required more than ordinary skill and support.

### Flying Department

The flying department is capable of exploiting to the maximum the capabilities of the wide variety of aircraft now in the Air America inventory and is prepared to incorporate other aircraft to suit specific Customer requirements. Although difficult to illustrate because of the variables of range, equipment, aircraft configuration, and crew requirements for given mission, the following photographs show graphically what loads each of several Udon-based helicopters might carry on a day of average atmospheric conditions.

Of the aircraft illustrated, all but two -- the CH-47C and the UH-34D -- are Air America owned. The CH-47C and UH-34D helicopters are government-furnished. Air America Flying Department personnel are experienced in many other types of aircraft, among them: Boeing 727s, DC-6s, DC-4s, DC-3s, (G-47), C-130 Hercules', C7A (DHC-4) DeHavilland Caribous, Curtiss C-48 Commandos, H-395 (U-10) Hello Couriers and the venerable PBV-5A amphibian. This wide base of experience simplifies check out of crews in new type aircraft when necessary to satisfy urgent Customer requirements.



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Picture 127: Air America's flight line at Udon.



© Judy Porter 1974

Picture 128: Hardstands are well-lighted and are provided with tie downs, electrical grounding points, all weather drainage and utility outlets. Depending on type, over 50 aircraft can be parked on the outer ramp also.



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Picture 129: The inner ramp is immediately adjacent to hangars and main shops. A de-fuel and X-ray isolation area is provided. On the far edge of the ramp, five of Supply's ten warehouses can be seen.



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Picture 130: The DeHavilland STOL "Twin-Otter Three Hundred Series" has served reliably in a number of air-taxi feeder airline and utility roles. As configured, it can carry up to 21 passengers plus baggage or cargo, or 4,000 pounds of cargo under the conditions shown below. The ability to operate from short, unprepared fields, to maneuver safely at low airspeeds in confined air spaces, and to climb and descend steeply for obstacle and terrain clearance make the "Twin-Otter" ideal for the conditions common in Southeast Asia and other remote areas. With fuel load of 378 gallons, the "Twin-Otter" is capable of 4-1/2 hours or approximately 575 NM of flight at an airspeed of 150 miles per hour (130 knots).

Aircraft Specifications for Twin Otter 300	Conditions
Power plant: PT6A-27	Fuel for 200NM
Certified Max. Wt.: 12,500 lbs.	Altitude: 500 ASL
Cruise Speed: 160 knots	OAT: +30°C
Crew: 1 pilot	



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Picture 131: The DeHavilland STOL "Twin-Otter Three Hundred Series" with illustrated cargo capacity of 4,000 lbs.



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Picture 132: The Turbo-Volpar Beech-18 (VTB-18) combines twin turbine performance and other modern features with an airframe of proven reliability. Speed and stability have made the VTB-18 successful as an aerial photography platform when modified. As shown, the VTB-18 can carry up to ten passengers plus baggage and cargo. A cargo fuel load of 632 gallons, the VTB-18 is capable of 8 hours or approximately 1,336NM of flight at an airspeed of 192 miles per hour (167 knots).

Aircraft Specifications for VTB-18	Conditions
Power plant: Air Research TPE331-1-101B	Fuel for 200NM
Certified Max. Wt.: 10,300 lbs.	Cruise Altitude: 9,000'
Cruise Speed: 203 knots	OAT: +15°C
Dimensions: Length 37'-5"; span 46'; height 9'-7"	
Crew: 1 pilot	
Passenger Seating Capacity: 10	



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Picture 133: Turbo-Volpar Beech-18 (VTB-18) with illustrated cargo capacity.



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Picture 134: The Hughes 500 is suited to a wide variety of "utility" uses such as transport of VIPs, up to three passengers, or a lesser number of passengers and baggage or cargo. The Hughes 500 can, as shown, carry 1,105 pounds externally under the conditions shown below. With full fuel (JP-1) the H-500 is capable of 3 hours of flight at 129 miles per hour (112 knots) or approximately 337NM. Cockpit visibility and speed make this civilian version for the Army's OH-6 an ideal light observation or survey platforms. Optional equipment includes long range fuel tanks, a personnel hoist, extended landing gear struts, floats, and cargo rack and luggage pod installations.

Aircraft Specifications for Hughes 500	Conditions
Power plant: Allison, Series 250-C18	Fueled for 100NM
Certified Max. Wt.: 2,725 lbs.	Altitude: 500'
Cruise Speed: 110 knots	OAT: 30°C
Crew: 1 pilot	



© Judy Porter 1974

Picture 135: Hughes 500 carrying 1,105 lb. sling load.



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Picture 136: Sikorsky S-58T "Twin-Pac" shows its versatility in accommodating various loads on a typically warm day at Udorn. Under the conditions listed below, the S-58T could carry 3,3325 pounds of cargo internally or, as shown, by means of the external cargo sling. Alternatively, the S-58T can carry up to fourteen passengers and baggage plus additional cargo. Fuel capacity is 266 gallons of JP-1 with provisions for adding a 150 gallon drop tank. With a total fuel load of 416 gallons, the S-58T is capable of 4 hours or approximately 360NM of flight at an airspeed of 115 miles per hour (100 knots.)

Aircraft Specifications for Sikorsky S-58T	Conditions
Power plant: Twin UACL PT6T-3	Fuel for 100NM
Certified Max. Wt.: 13,000 lbs.	Altitude: 500'
Dimensions: Length 65'-10" (w/o blade); height 15'-11"	OAT: +30°C
Crew: 2	
Passenger Seating Capacity: 14	



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Picture 138: S-58T carrying a 3,325 lb. sling load.



© Judy Porter 1974

Picture 137: The Porter PC-6C is capable of performing well in transporting up to 7 passengers or equivalent cargo under various operational conditions. Equipped with oversize wheels, it tolerates unprepared and muddy strips well. The PC-6C has exceptional "short take off and landing" (STOL) statistics. At sea level, it can operate from strips only 300 feet in length (with no obstacles). Normal passenger seating can be increased to 9 in a high-density configuration. A "drop-door" feature allows airdrop of cargo with accuracy. With a maximum fuel load of 128 gallons, the PC-6C is capable of 3 hours or approximately 360NM of flight at an airspeed of 138 miles per hour (120 knots).

Aircraft Specifications for Porter PC-6C	Conditions
Power plant: TPE 331-25	Fuel for 200NM
Certified Max. Wt.: 4,850 lbs.	Altitude: 8,000'
Cruise Speed: 120 knots	OAT: +15°C
Crew: 1 pilot	



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Picture 136: Sikorsky S-58T "Twin-Pac" shows its versatility in accommodating various loads on a typically warm day at Udorn. Under the conditions listed below, the S-58T could carry 3,3325 pounds of cargo internally or, as shown, by means of the external cargo sling. Alternatively, the S-58T can carry up to fourteen passengers and baggage plus additional cargo. Fuel capacity is 266 gallons of JP-1 with provisions for adding a 150 gallon drop tank. With a total fuel load of 416 gallons, the S-58T is capable of 4 hours or approximately 360NM of flight at an airspeed of 115 miles per hour (100 knots.)

Aircraft Specifications for Sikorsky S-58T	Conditions
Power plant: Twin UACL PT6T-3	Fuel for 100NM
Certified Max. Wt.: 13,000 lbs.	Altitude: 500'
Dimensions: Length 65'-10" (w/o blade); height 15'-11"	OAT: +30°C
Crew: 2	
Passenger Seating Capacity: 14	



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Picture 138: S-58T carrying a 3,325 lb. sling load.



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Picture 137: The Porter PC-6C is capable of performing well in transporting up to 7 passengers or equivalent cargo under various operational conditions. Equipped with oversize wheels, it tolerates unprepared and muddy strips well. The PC-6C has exceptional "short take off and landing" (STOL) statistics. At sea level, it can operate from strips only 300 feet in length (with no obstacles). Normal passenger seating can be increased to 9 in a high-density configuration. A "drop-door" feature allows airdrop of cargo with accuracy. With a maximum fuel load of 128 gallons, the PC-6C is capable of 3 hours or approximately 360NM of flight at an airspeed of 138 miles per hour (120 knots).

Aircraft Specifications for Porter PC-6C	Conditions
Power plant: TPE 331-25	Fuel for 200NM
Certified Max. Wt.: 4,850 lbs.	Altitude: 8,000'
Cruise Speed: 120 knots	OAT: +15°C
Crew: 1 pilot	



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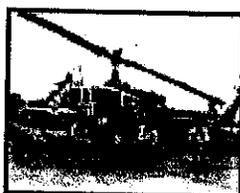
Picture 139: The UH-34D has flown over 8 million hours in military and civilian versions. Capable of delivering internal cargo as well as external cargo sling loads to remote sites, the UH-34D can also accommodate up to 12 passengers and baggage or cargo. Under the conditions shown, 2,965 pounds of useful load can be carried. With full fuel of 266 gallons (115/145 octane), the UH-34D is capable of 4 hours or 294NM of flight at an airspeed of 100 miles per hour (87 knots).

Aircraft Specifications for UH-34D	Conditions
Power plant: Wright R-1820-84C	Fueled for 100NM
Certified Max. Wt.: 13,500 lbs.	Altitude: 500'
Cruise Speed: 80 knots	OAT: 30°C
Dimensions: Length 65'-10"; width (w/o blades) 15'-0"; height 15'-11"; diameter MRB 56'-0"	
Crew: 2	
Passenger Seating Capacity: 12	



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Picture 140: UH-34D carrying 2965 lb. sling load



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Picture 141: Air America Bell 204B on the ground with passenger load at Udorn, Thailand. The Bell 204B is a civilian version of the reliable, military UH-1B "Huey" helicopter which has proven itself in many varied applications world-wide in carrying passengers, internal cargo or external sling-loads. With a full fuel load of 242 gallons of JP-1, the 204B is capable of 3 hours or approximately 300NM of flight at an airspeed of 104 miles per hour (90 knots). Internal auxiliary fuel tanks can increase range to approximately 384NM. Under the conditions shown, the 204B can carry a useful load of 1,890 pounds.

Aircraft Specifications for Bell 204B	Conditions
Power plant: Lycoming T5311A	Fuel for 100NM
Certified Max. Wt.: 8,250 lbs.	Altitude: 500'
Cruise Speed: 90 knots	OAT: +30°C
Dimensions: Length 44'-8"; width 9'-5"; height 14'-8"; diameter MRB 48'-8"	
Crew: 2	
Passenger Seating Capacity: 7	



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Picture 142: The Bell 204B is a civilian version of the reliable, military UH-1B "Huey" helicopter which has proven itself in many varied applications world-wide in carrying passengers, internal cargo or external sling-loads. With a full fuel load of 242 gallons of JP-1, the 204B is capable of 3 hours or approximately 300NM of flight at an airspeed of 104 miles per hour (90 knots). Internal auxiliary fuel tanks can increase range to approximately 384NM. Under the conditions shown, the 204B can carry a useful load of 1,890 pounds.



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Picture 143: Air America Bell 204B airborne with sling load of 1,890 lbs.



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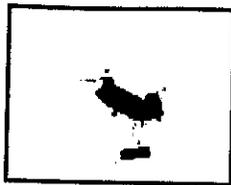
Picture 144: Air America Bell 205 on the ground with passenger load at Udorn, Thailand. The Bell 205 is a "big brother" of the 204B model. This larger, increase capacity helicopter is in world-wide use as the military UH-1D. Equipped with a T5313A Lycoming engine capable of greater horsepower output than the 204B T5311A and an enlarged cabin to accommodate 11 passengers, it has demonstrated reliability equal to the 204B and remarkable versatility. With a full fuel load of 220 gallons of JP-1 the 205 is capable of 2-1/2 hours or approximately 225NM of flight at an airspeed of 104 miles per hour (90 knots). Internal auxiliary fuel tanks can increase range to 606NM. Under the conditions shown, the Bell 205 can carry a useful load of 2,685 pounds.

Aircraft Specifications for Bell 205	Conditions
Power plant: Lycoming T5313A	Fuel for 100NM
Certified Max. Wt.: 9,410 lbs.	Altitude: 500'
Cruise Speed: 90 knots	OAT: +30°C
Crew: 2	



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Picture 145: Air America Bell 205 carrying a sling load weighing 2,685 lbs.



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Picture 146: Boeing Vertol CH-47C "Chinooks" are helicopter "heavyweights." As shown, this aircraft is capable of operating with passenger, cargo, and sling loads. Reserve power available in the twin Lycoming T-55-11A engines allows the "Chinook" to perform well at higher altitudes. The rear cargo ramp makes loading of wheeled cargo simple. Equipped with tracks, the "Chinook" can air drop cargo at locations where landing is not desirable. With a full fuel load of 1,131 gallons the "Chinook" is capable of 3 hours or approximately 331NM of flight at 120 miles per hour (104 knots). Under the conditions shown, the "Chinook" can carry 18,000 pounds. This CH-47C is carrying a sling load weighing 18,000 lbs.

Aircraft Specifications for CH-47C	Conditions
Power plant: Twin Lycoming T-55-11As	Fuel for 100NM
Certified Max. Wt.: 46,000 lbs.	Altitude: 500 ASL
Dimensions: Length 50'-9" (w/o blades); width 12'-5"; and height 18'-11"	OAT: 30°C
Crew: 4	
Passenger Seating Capacity: 31	



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Picture 147: Air America CH-47C "Chinook" in front of the Passenger Terminal at Udorn, Thailand.

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