Inspection Report

Sikorsky S-76C+
Serial Number [redacted]
Model Year 2000

[redacted]

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Sikorsky S-76C+ Inspection Report
Serial Number [redacted]
Year of Manufacture 2000

Narrative:

On [redacted], I conducted an inspection of Sikorsky S-76C+ helicopter serial number [redacted] at the present owner's facility in [redacted]. The purpose of the inspection was: (1) to survey the aircraft and associated equipment being offered for sale, (2) determination of life limited components and airworthiness status of the aircraft, (3) suitability of the aircraft for its intended mission in Songkhla Thailand, and (4) determination of Current Fair Market Value. The inspection was conducted on behalf of [redacted], prospective operators of this helicopter.

These findings are organized into sections with comments interspersed where appropriate and photographs in Appendix A. Appendix B contain copies of the current Certificate of Airworthiness, Registration, etc. Appendix C lists the status of the time life limited major components as installed at the time of inspection. Included in this report, but under separate cover is a listing of the various CHR's and maintenance records that substantiate the enclosed Component Status Report. In the time allotted for an inspection, a more thorough inspection was not possible; however the inspection as conducted was sufficient for me to conclude the following:

1. Helicopter as inspected was represented fairly in the owner's sales promotional material
2. The overall condition of the aircraft and components is very good, although certain areas will require preventive maintenance and minor repairs. The helicopter was in airworthy condition and a demonstration flight was conducted to this inspector's satisfaction.
3. The aircraft can be made suitable for induction into [redacted] fleet without a major expenditure in labour or materials. Its configuration is similar in all significant features to [redacted] current fleet.
4. It is apparent that the current owner has invested a considerable amount of money and effort to maintain the aircraft since new and this effort should be recognized in a high average Current Fair Market Value.

The information contained herein is true and accurate based on records and data provided by the seller. Representations as to the suitability for the intended mission, airworthiness of the aircraft, acceptability of the aircraft in its current condition for inclusion on the register of any government regulatory agency or the marketability of the aircraft are the opinions of the inspection based solely on the examination of the records provided. Neither RotorLink Technical Services nor this inspector warrant the accuracy or the completeness of these records.

By: _____ Dated: [redacted]

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Opinions of Market Value

Sikorsky built a large number of S-76C's s beginning in the early 90's and the aircraft was utilized almost exclusively by the executive market, which was high end, non revenue generating operations. The older aircraft in the fleet were generally displaced with new aircraft. Executives and government leaders selected the S-76C+ for its speed, excellent safety record, spacious cabin and many comfort features.

The Sikorsky S-76C+ is now the aircraft of choice for many different applications. Airlines and offshore oil support operators who have operated the S-76 at well over 1,000 flight hours per year have come to depend on its outstanding availability and operating economics as an underpinning of their business. Presently, the S-76C+ markets are diverse, with most growth in EMS and offshore oil/passenger missions. The market is quite stable due to the proven mission capability and reliability.

Considering today's Fair Market Value of an S-76C+, several factors are important. The first consideration must be the suitability of its intended missions. The price of a new S-76C+ varies depending on the mission application and optional configuration items. Prices for 2005 deliveries range from $6+ million U.S. for a basic twelve-passenger transport to $8+ million U.S. for a deluxe executive configuration.

From time to time, previously-owned S-76 helicopters become available. Prices of these aircraft vary with the age and configuration of the helicopter. Previously-owned S-76 helicopters can range from $2+ million U.S. for an S-76A with no warranty coverage to over $6 million U.S. for an S-76C+, including warranty, training and other services similar to new sales.

I believe [redacted] to be low time by comparison to today's S-76C+ fleet average of 6000 to 9000 airframe hours. More importantly, all of the component times are mid life or better, with the exception of one spindle and some engines components.

The current owner purchased the ship for induction into its fleet of Airline and Offshore Transportation Aircraft, as it is simply the best combination of cabin size for twelve passengers, speed, range, reliability and operating costs for the lowest seat mile cost available.

The present owner has spent considerable effort towards the ongoing maintenance and refurbishment of the cowlings and dynamic components which were beginning to show signs of age. The quality of refurbishment is above average and the personnel who maintain the aircraft took pride in their work. The wheel wells should be cleaned and checked for corrosion and cracks. When the decision was made to sell the aircraft all

ASB's and AD's were complied with. Some CSN's were carried out but others remain open.

To determine the current market value, I compared the aircraft to other aircraft presently on the market or recently sold. At this time, the following aircraft are being offered.

S-76C+ Year 1997 serial number [redacted] has a total time since new of 8800 hours. The ship is located in Europe and is equipped with SPIFR, emergency floats, and offshore equipped with a high density passenger interior. The asking price is $4.975M USD. This aircraft has no damage history and good pedigree. I last saw this ship in late 2003 and it was in decent shape but needing some cosmetic work. I suspect this ship is only on the market casually and that the owner will hold out for $4.75M USD

Recently sold was a 1996 S-76C serial number [redacted] with 4030 hours total time. It was in an executive transport configuration outfitted with a Honeywell Avionics Package, Bendix/King TCAS, Universal FMS,4- EFIS, and Airborne Telephone System. The ship was sold in the UK to a US broker for $3.5M USD. It was a medium weight aircraft used for charter and was loaded with high time components prior to sale.

S-76C+ year 1999 serial number [redacted] is being offered for sale at $5.875M USD with about 2600 hours since new. Although it is in excellent Airworthy condition, it is configured for an EMS mission and the configuration has several unique features and modifications. I suspect this ship will sell in the $5.3-5.5M range to the right operator.

A 2000 model year S-76C+ serial number [redacted], with less than 2000 hours TTSN is being marketed for $6.5M+ USD. This particular aircraft is outfitted for Search and Rescue. It has a rescue hoist, forward looking FLIR, nightsun, and sophisticated avionics specifically designed for offshore SAR operations. This ship has been on the market for almost seven months and will not sell until the owner lowers the asking price

By comparison, S-76C+ SN [redacted] is in as good or better condition than all the above aircraft, has better component times and has about the same total time as most of the fleet of a similar vintage.

Another reference used was The Official Helicopter Blue Book, Edition 1, 2003, published by HeliValue$ Inc.

Considering the aircraft to be in the mid time range (on the low side) and adding for the floats, cargo hook, and overall condition. I disagree with the blue books reduction of 10-15% for offshore configuration in this instance, since much of the market is now in the

offshore/EMS sector. The Blue Book is a rearward looking study and follows the market rather than project the trend. Lastly, I look at the original selling price of the aircraft whenever possible. In the case of an aircraft without damage history, no major changes to the configuration and well maintained, I expect the resale value to be in the 60-80% of new for high time aircraft, 70-90% of new for mid time and 80-100% of new for low time aircraft. This rule of thumb is based on several years of following the Sikorsky S-76 values and while unscientific, it has proven to be fairly accurate.

Based on the recent market demand for quality S-76C+'s and considering the owner has agreed to include the full amount currently on account with Sikorsky for the PBH, program, I expect the Current Fair Market Value of S/N [redacted] is in the range of $4.8 to $5.0M USD. I further speculate that the ship would sell quickly in a "Fire Sale" for $4.4M to $4.6M, especially to a company operating in the offshore oil sector.

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Aircraft Data

Manufacturer	Sikorsky Aircraft Division United Technologies Corp
Model Designation	S-76C+
Serial Number	[redacted]
Date of Manufacture	Apr, 2000
Current Civil Registration	[redacted]
Present Owner of Record (Title)	[redacted]
Total Time, Airframe	3571.45
Total Landings	14469 Landings
Number and Type of Engines	Two Turbomeca Arriel 2S1 No One Engine S/N [redacted] No Two Engine S/N [redacted]
Maximum Gross Weight	11700 LBS
Equipped Empty Weight / CG	7847 LBS @ Sta 211.5
Last Weighed	Feb 2003
Basic Mission Configuration	Offshore Passenger
Airworthiness Status	Airworthy

“Aircraft on Sikorsky and Turbomeca Support Plans”

Total Time Since New: 3571.45

Configuration Details

Airframe

- Nose mounted radome
- Nose and tail avionics compartments
- Unheated plastic windshields
- Bleed air windshield defogging system
- Dual windshield wipers
- Pilot and copilot seats with 5-point restraint harness
- Two ejectable, hinged cockpit doors
- Cockpit and cabin bleed air heating system
- Ram air ventilation system
- Fully retractable tricycle landing gear with pivoting nose gear and main wheel brakes
- Pneumatic emergency landing gear extension system with externally visible pressure gage
- 204 cubic foot cabin with 75 psf floor and fittings for up to twelve (12) seats
- Hard panel utility interior
- Four (4) two-place folding split bench seats with 4-point harness restraint systems
- Four-place forward-facing utility divan with 4-point harness restraint systems
- Left and right side hinged cabin doors with electric door locks
- Separate 38 cubic foot baggage compartment with dual lockable doors
- Utility paint finish
- Carbide Black Polane instrument panel paint finish

Propulsion

- Dual Turbomeca Arriel 2S1 engines
- Dual independent suction fuel systems with cross feed capability
- Dual fuel tanks with gravity fuel fillers, 281 US gallon total capacity
- Low level fuel warning system
- Hinged fuel filler caps with key locks

- Engine fire detection and extinguishing systems
- Engine water wash connection in baggage compartment
- Dual-input main gearbox rated at 1,605 shp for takeoff
- Intermediate and tail gearboxes with interconnecting drive shafts
- Magnetic chip detectors with fuzz burn-off capability
- Manually actuated rotor brake system

Communications

- Two (2) dB Systems Inc. audio systems with additional maintenance jacks in the cabin (1) and baggage compartment (2).
- Two (2) cockpit ICS foot switches with 45? pedestal mount
- Radio and EFIS master switches
- Two (2) VHF communications radios (Collins VHF-22A with CTL-22 controls)
- Emergency Locator Transmitter (ARTEC ELT-100HM)
- Single transponder (Collins TDR-90 with CTL-92 control and CAD-62 adapter)
- Cabin paging and chime system with six (6) overhead speakers
- Passenger briefing system (Heads-Up PBS 250)
- Cabin ICS system (dB Systems Inc.)

Navigation

- ADF (Collins ADF-462)
- Two (2) VOR's with ILS, glide slope and marker beacon (Collins VIR-32)
- DME (Collins DME-42 with IND-42A indicator)

Special Mission Equipment

- Structural provisions for cargo hook

Electrical Systems

- Dual 200 amp starter-generators
- Single 44 amp-hour battery (Super Marathon)
- Battery temperature warning system
- Dual 375 VA static inverters
- DC external power receptacles with over voltage protection
- Controllable landing light
- Fixed landing light(s) on the right main landing gear

- Three (3) strobe/position light system (strobe/normal)
- Four (4) dimmable cockpit overhead Wemac lights
- Two (2) cockpit map lights with coil cords on control closet (Grimes)
- Two (2) lighted approach plate holders
- Battery operated emergency cabin lights
- Dual baggage compartment lights
- Inspection lights for IGB and TGB sight gages
- Overhead master switch panels (dual row for pilot side, single row for copilot side)

Rotor System

- Four-blade articulated main rotor with one-piece aluminum hub and elastomeric bearings
- Main rotor blades with titanium spars, fiberglass skins, honeycomb cores and high visibility paint
- Single biflar vibration suppression system
- Provisions for main rotor and tail rotor balancer (Chadwick-Helmuth Model 8500)
- Four-blade flex beam tail rotor

Flight Controls and Instruments

- Dual independent 3,000 psi hydraulic systems with quick disconnects for ground servicing
- Dual independent flight control servo systems
- Dual Digital Automatic Flight Control System - DDAFCS (Honeywell SPZ-7600, four-axis fully coupled)
- Electronic Flight Instrumentation System - EFIS (Honeywell EDZ-756, four 5x6 inch tubes)
- Integrated Instrument Display System (Gull IIDS)
- Three-inch standby self-contained attitude indicator with emergency power supply
- Standby magnetic compass
- Three-inch backup airspeed indicator
- Three-inch backup barometric altimeter
- Two (2) Attitude Heading Reference Systems (AHRS)
- Two (2) air data systems (Penny and Giles)
- Radio altimeter (Collins ALT-55B) with single expanded scale analog indicator (Collins ALI-55A)
- Solid-state Combined Voice and Flight Data Recorder

- Dual pitot static systems with pitot and static port heat
- Outside air temperature indicator (mechanical)
- Two (2) digital electric clocks (DAVTRON 877)
- Two (2) low profile glare-shield-mounted master warning panels
- Two (2) landing gear up warning indicators
- Battery temperature warning system
- Door open annunciator panel

Additional Options for Offshore Oil Configuration

- Emergency flotation system with nose float bottle access cover
- Push-out cabin windows
- Collective detent kit (required for Cat A vertical procedure, includes collective stop, aural signal, and additional window in cockpit door)
- Third nav system (Trimble 2101 I/O Approach Plus)
- Radar (Honeywell Primus 440)

Loose Equipment
Landing gear pins (3)

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Inspectors Comments / Configuration Details

- Snow Kit and slippery shields not fitted
- Placards and markings should be reviewed for acceptability
- No covers or plugs available
- GPS unit was missing but is to be returned prior to delivery
- Various caution panel capsule lenses becoming unreadable due to scratches
- Exterior paint is adequate, but deteriorating
- Instrument panel and center console paint is adequate with minor wear
- Wiring is secure and in good overall condition
- With the exception of the cathedral cowling, the overall fit, form and function of the remaining cowlings and doors are acceptable
- A few loose fasteners on engine deck LH honeycomb panel / upper longeron
- Both plastic windscreens have minor scratches
- A few interior panels show signs of wear

Inspection Program

Type of Program	Sikorsky Progressive / Zone
Date of Last Annual Inspection	September 16, 2003
Component Exchange or PxH Program	Sikorsky PxH

Damage History

- There is no record or evidence of:
  - Hard landing
  - Fire / smoke damage
  - Water / hail / wind Damage
  - Lightning damage
  - Accident / Incident
  - Water landing / immersion
  - Sudden stoppage
  - Engine incidents

- A minor deformation of the sheet metal at the right hand jack pad is noticeable but not obvious. I suspect the deformation is a result of a jack being inadvertently pumped up with the jack point not sitting in the cup of the jack. This damage presents no hazard and is cosmetically acceptable.

- A repair has been installed on a “T” clip at the tailcone/fuselage attachment point. Sikorsky provides a specific repair scheme for damaged Tee, Skin and Nested

angles in the S-76 Structural Repair Manual SA 4047-76-12. Prior to this manuals release, repairs were accomplished in accordance with accepted general repair techniques for cracked or damaged Tee angles, longerons and nested angles. This particular repair was performed in accordance wit h those general repair procedures and is of a sound design and the workmanship was acceptable

Logs and Records

- All historical records are written in English
- Aircraft records are neatly written and appear complete. Archives of historical records are available
- Current owner uses the “Daniels System” to track maintenance. Current printout was provided for review during the inspection
- Time controlled parts tags and maintenance release tags are available
- FAA Form 337’s for major alterations are available.
- Serial number inventory provided was complete and is documented in records
- Current Electrical Load Analysis is available
- Copy of Registration provided with this report
- Radio Station License is provided with this report
- Copy of Certificate of Airworthiness sis included with this report
- Copy of Weight and Balance is provided with this report
- Data plate for airframe and engines were verified and are accurate
- Serial numbers were spot checked on certain components and were found to be accurate

Inspector’s comments

Due to a lack of time on sight not all the equipment serial numbers were checked. I presume the owner would not swap any components after accepting an offer, still I strongly advise that each serial number on EVERY component listed in the aircraft logs be verified for accuracy before closing.

While the historical records were not fully studied, they appear to be more than sufficient to satisfy any governmental regulatory body.

Publications

Flight manual and Supplements were in the current revision status an in North American format

Maintenance manuals and IPC were up to date
Reference manuals for ASB's / CSN's were only available in the company library.
Engine manuals were up to date and readily available
Operator manuals were available for some of the communications and navigation equipment
Option Data Package for original equipment was available
Up to date Electrical Load Analysis was available and is to be provided

Inspector's comments

The current owner maintains the aircraft using technical publications from their technical library. Generally, individual copies are not kept.

The Flight Manual and supplements are customized and I recommend a review of the supplements required and a new RFM that is acceptable to your local regulatory body

Inspection Findings, General

A thorough visual inspection of the interior and exterior of the ship was performed. The engineers opened all engine cowls, nose e-bay compartments, wheel wells and tailcone inspection panels. The fairings and covers on the tailcone were not removed due to visual access through openings and lack of time. None of the interior was removed. Most areas were clean in general and there was no evidence of corrosion. As is typical with all working aircraft, I found evidence of various fasteners that have been replaced. I also found evidence of a small amount of working rivets and cosmetic paint cracks in the usual locations such as the engine longerons, lower baggage compartment door frame and skin panel joints above the cabin doors. No serious problems were found

The exterior paint was represented as original and I can accept this to be true. The interior paint in the baggage compartment was recently reapplied and was of good quality. The painter chose to mask off the door seals and there was evidence of overspray. This was hardly noticeable.

The ship is equipped with plastic windscreens and pop out windows in the cabin. All Plexiglas panels are in excellent condition as was the radome. The cowlings are all in good condition with the exception of the cathedral cowling, which was wearing due to misalignment with the mating surfaces.

Exhaust ejectors appeared to be properly aligned and free of cracks. All of the firewalls were in excellent shape and they fitted very well. The engine decks are clean and properly sealed. The aft end of the engine deck is prone to corrosion, but there was no evidence present. Both the main and nose wheel wells could use some attention to

detail. These areas should be cleaned up and inspected for both cracks and corrosion. Neither the nose nor main landing gear showed signs of leakage. All tires were relatively new. The wheels were in good shape.

The tailcone and fairings appeared to be damage free and were in good condition. Standard position lights and strobe were functioning properly. All exterior hardware was rust free and Philips head screws were replaced with AN-3 bolts.

Inspection Findings, Rotors and Dynamic Components

The main rotor blades appear to be in good condition with some minor repairs that were made in the past. All leading edges were in good shape and looked good except for touch up's in the paintwork. The blades are painted white on the topsides. One tip cap had a small sharp dent in the leading edge with no signs of cracking

The rotor hub was in good condition with no rust evident on either the hardware or periphery of the mast flange. All elastomeric bearings were in good condition with no wear evident. Both pitch rod bearings and pitch rod end bearings were tight. The swashplate and dampers were in good shape. With the exception of one small nick that can easily be blended smooth the bifilar bushings were clean and smooth.

The tail rotor head was clean and bonding jumpers were in place. The boots were fine and everything was properly sealed with PRC. There was nothing unusual found, but still a more thorough inspection must be performed.

Both engines were impeccably clean and no cracks were seen in the scrolls or combustion areas. There had been some minor FOD damage to one impeller that was blended nicely.

The rotor brake, calipers and disc appeared to be rarely used.

Inspection Findings, Interior and Miscellaneous

The baggage compartment was clean and freshly painted light grey. All shrouds were in good condition. There was no evidence of fluid leakage was present on the overhead or heater sound suppressor

The cabin seats were like new as were the frames. The floor covering was in excellent condition. The floor under the carpet was clean and tidy. The cabin sidewalls were in good shape, but the piping was showing signs of wear. The middle and forward rows are each single 4-place seats.

Crew upholstery match the cabin seats. The seats were in good mechanical condition. The glareshield was in good shape overall as were the instrument panel and center console.

The aircraft data plate was affixed in the proper location and the serial number matched the registration.

Inspection Findings, Demonstrator Flight

Component Times Remaining

Aircraft:

M/R HUB	14,428.15 RT
DC Starter Generator	759.10 OH
DC Starter Generator	746.30 OH
Swashplate Assy.	15,628.15 RT
Main Gearbox	2,794.45 OH
Main Rotor Shaft	4,553.50 RT
T/R Blades	17,118.55 RT
T/R Blades	18,668.10 RT
Intermediate Gearbox	428.15 OH
M/R G/B Quill Shaft	8,653.50 RT
Tail Gearbox	928.15 OH
Main Rotor Blades (All)	24,429.15 RT

Engine:

	L/H	R/H
Free Turbine G/B (OH)	1,399.45	463.50
Axial Compressor (OH)	1,399.45	507.15
Axial Comp Wheel (CY)	21,725.64	11,945.77
Gas Generator (OH)	1,399.45	507.15
Cent Comp. Rotor (CY)	19,816.94	19,378.99
Injection Wheel (RT)	4,316.94	5,158.29
HP Turbine Disk (CY)	14,817.17	14,378.99
Free Turb. Assy. (3000 OH)	1,399.45	864.05
Free Turbine Disk (CY)	20,223.10	20,582.40

Note: All equipment & Times listed are subject to verification upon inspection and subject to prior sale. All hours quoted do not include aircraft ferrying and testing.