CARSON HELICOPTERS INC

Carson Helicopters Flight Evaluation with S61N Helicopter

RE: Weaverville Helicopter Accident N612AZ; Summary of 3 November 2009 Flight Test

1. Basic Description of Evaluation

On 3 November 2009, a flight performance evaluation was done by Whipple Aviation Services in conjunction with VIH Cougar Helicopters on behalf of Carson Helicopters, Inc. The evaluation utilized an S-61N helicopter equipped similarly to helicopter N612AZ when it crashed near Weaverville, CA on 5 August, 2008. The purpose of the evaluation was to assess the helicopter's performance when configured like N612AZ and flown at a density altitude similar to that experienced by N612AZ during the takeoffs from Helispot 44. The aircraft was also flown at gross weight conditions significantly in excess of the NTSB's theoretical weight of N612AZ during the accident takeoff.

The test aircraft was an S-61N long body, fixed gear helicopter equipped in firefighting configuration with a 700 gallon water bucket and 200 ft. longline. The use of the longline attached to a calibrated load cell on the aircraft allowed precise metering of the water/weight load to allow accurate control of the flown weights. The aircraft was de-fueled and weighed at Reno the day of the test utilizing calibrated scales and witnessed by an FAA Designated Airworthiness Representative prior to being placed in the Experimental Category for purposes of the test. The load cell was calibrated on 9/9/09. The engines were tuned and calibrated to match the topping limits and power output of N612AZ as of 8/4/08 (the last power check performed prior to the accident). Winds were calm for the evaluation flights. The flights were monitored by an independent aviation consultant and were videotaped. The helicopter was flown by VIH Cougar pilots. The five onboard pilots observing the flights from three different firms had combined flight experience in excess of 60,000 hours.

Carson disputes the meteorological conditions during the accident takeoff that are reported in the NTSB accident group investigation reports. For comparison purposes, the NTSB estimates the takeoff conditions as 5,980 ft. pressure altitude and 23 deg. C temperature, for a density altitude of 8,476 ft., with no wind. N612AZ lifted off from H44 in ground effect, came to a short hover about 50 – 60 ft. above ground level (AGL), in or near ground effect, then transitioned to forward flight. Carson's analysis is that the temperature was 20 degrees C., with a quartering headwind of 3 – 5 knots. The NTSB's listed conditions are based on meteorological analysis of extrapolated data taken from weather stations located several miles from the accident site. Carson's analysis is based on instrument readings taken from the cockpit voice recorder from the accident aircraft, ground witnesses who were qualified weather observers, and analysis of local conditions by an independent meteorologist.

Carson also disputes the current listed weight for N612AZ as formulated by the NTSB investigators. The NTSB postulates that the takeoff weight of N612AZ was approximately 19,010 lbs. Carson's reconstruction and analysis shows that the aircraft weighed approximately 18,600 lbs. Despite any confusion regarding the weight or weather conditions of N612AZ at the time of the accident, the 3 November 2009 flight test shows that with normally operating engines and rotor system N612AZ should have had sufficient power to safely take off and conduct its mission at the time of the accident, even at the higher weight the NTSB has ascribed to the aircraft.

The test aircraft was flown at density altitudes ranging from 8,450 ft. to 8,551 ft., with all but one test point exceeding the NTSB's theoretical density altitude for the accident. The winds at the location and altitude of the test were negligible, matching the conditions stated in the Group Operations report.

On each test run, the aircraft picked up its water/weight load from a lake at 5,588 ft. above mean sea level (MSL) and then ascended to the desired pressure altitude of 6,700 ft. above MSL to achieve the desired density altitude. The aircraft then came to a hover at 400 ft. AGL, completely out-of-ground effect (OGE). The collective pitch control was then pulled up to its Maximum Stop in order to bleed Main Rotor RPM down as low as possible and held there to duplicate sustained maximum rotor droop conditions.

2. Primary Observations from the Test

Full detailed results are contained in the Whipple Aviation Services Report, but several important facts should be highlighted:

1st Test Run – aircraft weight 19,100 lbs. – from a stabilized out-of-ground effect hover, full collective was pulled up, Main Rotor RPM (NR) decayed to 94% and stabilized there; Main Rotor RPM would not droop below 94%. Aircraft was still exhibiting a 200 feet per minute (FPM) positive rate of climb. A one inch deflection (lowering) of the collective resulted in Main Rotor RPM recovery to 100% within 2 seconds.

2nd Test Run – Eight separate hover performance tests were conducted during this test run as outlined below. Each test was at slightly different gross weight due to fuel consumption.

Tests 1 to 5 – Aircraft weight ranged from 18,643 lbs. to 18,300 lbs. From a stabilized out-of-ground effect hover at 400 ft. above ground level, full collective was pulled up and sustained at the stop; Main Rotor RPM drooped to 94%, then stabilized and would not decay below 94%. The aircraft exhibited rates of climb varying from neutral to +300 FPM. One inch of collective deflection brought the Main Rotor RPM back to 100% or above within two seconds.

Tests 6 to 8 – Aircraft weight ranged from 19,543 to 19,393 lbs. Aircraft flew from the lake up to 400 ft. above ground level and came to a stabilized hover out-of-ground effect. With full collective pulled up, Main Rotor RPM drooped to 94%, but would not decay below 94%. The aircraft very slowly settled, with power, with a negative rate of climb of -250 FPM. One inch deflection of collective restored Main Rotor RPM to 100% or above, and the aircraft exhibited immediate positive rates of climb.

Test 8 – This test was performed by pulling up maximum collective as in the prior tests, but the speed selector lever – throttle (SSL) for the number 2 engine was then reduced, bringing the engine output torque down to 70%. The Main Rotor RPM rapidly decayed below 91% without stabilizing or hesitating and the aircraft developed a rapid -500 to -600 FPM rate of descent. The collective was then reduced, the SSL advanced to restore power to the number 2 engine, and the aircraft recovered torque and Main Rotor RPM and was flown into a climb.

3. Key Conclusions

A. In every case, even at weights exceeding 19,500 lbs. (well above what the accident aircraft could have weighed), the test helicopter successfully (i) picked up water weight from a lake at 5588 ft.; (ii) flew up to 400 ft. above ground level; and (iii) came to a stabilized hover.

B. From a stabilized out-of-ground effect hover, maximum sustained collective input representing maximum rotor droop conditions beyond what would normally be applied, resulted in a droop to a stabilized 94% Main Rotor RPM, beyond which the rotor system would not droop. Even at this maximum condition, the aircraft exhibited positive rates of climb.

C. The most minor collective correction by the pilots resulted in recovery of the rotor system within 2 seconds to 100% Main Rotor RPM or above, and positive rates of climb.

D. Even at weights several hundred pounds greater than the weight of N612AZ at the time of the accident, the one and only condition in which rapid rotor droop below 94% Main Rotor RPM with unrecoverable flight conditions could be induced was by reducing power to one engine by approximately 25%.

Restoration of power and minimal collective drop resulted in immediate recovery of the Main Rotor RPM and a positive rate of climb, even at 19,400 lbs.

The evaluation clearly demonstrates that even with an aircraft loaded to weights beyond the accident aircraft, an exemplar helicopter at the same density altitude with the composite main rotor system could repeatedly:

- Safely ascend and come to a hover well out of ground effect and fly the loads effectively with normal pilot input.

- Maintain a 94% Main Rotor RPM and hover even *with* maximum droop induced by maximum collective input. At all but the heaviest possible weights, the aircraft still maintained a positive rate of climb under these maximum droop conditions.

- Recover Main Rotor RPM to 100% in less than 2 seconds and immediately register positive rates of climb with a very minimal deflection of collective input.

The only condition under which this aircraft could mimic the rapid Main Rotor RPM decay below 91% as shown on the cockpit voice recorder spectrum analysis of the accident aircraft and not effectively fly the heaviest loads encountered was when power was rolled off of one engine by 25%. The flight test indicates that at the time of the accident, N612AZ should have been able to successfully take off and complete its mission absent an event resulting in loss of power to the rotor.

Whipple Aviation Services LLC

Russell Whipple is an independent contract pilot and aviation safety consultant. He has owned and operated Whipple Aviation Services for 15 years and specializes in operational efficiency as well as safety and risk management issues for both fixed wing and helicopter operations worldwide. He has several major industry clients in the energy sector, and has done consulting work for auditing aviation operations for government agencies. He has been called upon to conduct safety audits, construct safety programs, and engage in pilot training operations, as well as appear as an expert witness for aviation related matters.

Mr. Whipple is certified as both a US and Canadian Airline Transport Pilot and is type rated in the SK-64,SK-61, HU-500, B-206.

He has been a professional pilot for more than 40 years flying a variety of missions all over the world, in mountain conditions, beginning in Vietnam in 1969 as an AH1-G Cobra pilot.

He has worked for a variety of commercial operators in addition to his own consulting business, engaging in a mix of external load and part 135 transport operations.

Major Flight time

Sikorsky CH-54,SK-64 E & F: SK-61 A,V,L,& N	12,550+ hours
Bell AH-1 G,J, F Cobra; B-204,B-205 A-1, Bell 214 B-1 Bell 206,Bell 47, B-1, UH-1 A,B,,C,D, H, M	5,100 hours
Hughes 269-A; HU-300 C; HU-500 A,C,D,E,F	3,800 hours
Assorted Fixed wing airplane time	900+ hours
Total approximate flight time	**22,350 + hours**

AIRCRAFT PERFORMANCE EVALUATION REPORT

Project:
PERFORMANCE EVALUATION TEST FLIGHT
VTH Cougar Helicopters SK-61 N // N 261F
Reno Stead Airport, Reno, NV 03 November 09

Prepared For:
CARSON HELICOPTERS, INC.
828 BROOKSIDE BLVD
GRANTS PASS, OR 97523

Prepared by:
Whipple Aviation Services, LLC
[redacted]
Dayton, WA 99328
Tel. [redacted]
Cell

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WHIPPLE AVIATION SERVICES, LLC
[redacted] Dayton, WA 99328
Tel [redacted]
Cell [redacted]

Aviation Evaluation Report

Date: 03 November 09

Project

Name		Location
CARSON HELICOPTERS, INC. Performance Evaluation Test Flight		Reno Stead Airport Reno, NV
Average Pressure Altitude	Average D A	Average Centigrade Temperature
6,600 ft	8,550 ft	19 C

Aviation Contractor

Name	Home Office Address
VIH Cougar Helicopters Boise Air Terminal – Gowen Field	[redacted] Boise, ID 83705
Phone Number	Fax Number / E-mail
[redacted]	[redacted]
President / General Manager	Vice President of Operations / Chief Pilot
Larry Kelly	Larry Kelly

Pilot(s)

Pilot Name	Total Helicopter Flight Time	Licenses Held	Total SK-61 Flt. Time
Jim Stone	22,000 hrs	CMOT/FAA ATP-Hel	8,500 hrs
Co-Pilot Name	Total Helicopter Flight Time	Licenses Held	Total SK-61 Flt Time
Tyler Hupp	5,500 hrs	CMOT/FAA ATP-Hel	1,000 hrs

Aircraft

Aircraft Make & Model	Optional Equipment	Aircraft Tail Number
SK-61 N	Fixed Landing Gear, Composite M/R Blades	N 261 F
Total Time On Air Frame	Total Time on Engines (TTSMOH)	Aircraft Empty Weight
26,191.7 hrs	#1 Eng = 285.9 hrs// #2 Eng = 415.5 hrs	12,198.2 lbs

GENERAL SYNOPSIS

The purpose of this flight test was to evaluate and document the flight performance capability of a Sikorsky S-61N helicopter equipped and configured like N612AZ under conditions similar to those experienced by N612AZ during the accident takeoff from Helispot 44 on the Iron Complex Fire on 5 August 08. If the flight conditions could not be replicated due to weather issues, any adjustments were made toward the more critical side of the flight envelope.

TEST FLIGHT PREPARATIONS

To set the stage for this project there were a number of issues that needed to be addressed in order to ensure accuracy in assessing the capabilities of an SK-61N set up similar to N612AZ. These issues are addressed below.

SK-61 N (# N261F) AIRCRAFT EQUIPMENT

Aircraft was equipped with the new (performance enhancing) Carson composite main rotor blades.

Aircraft was equipped with a new load cell for the cargo hook on 09 September 2009, aircraft total time 26,121.5 hrs, work order/Journey Log page # 00915. Load cell was calibrated successfully after installation.

Aircraft was equipped with "L model" fixed landing gear.

Aircraft was equipped with an adjustable load, 700-US gallon "Fast" water bucket with 200-foot long-line.

(See Appendices 3, 4, & 5)

WEIGHT & BALANCE

Aircraft N261F was defueled, emptied of contents, and rolled into the Tac-Air hangar at Reno-Stead airport for weighing.

Neptune Revere aircraft scales, serial # 5356A, last calibrated 9-28-09, were used to establish the current weight of the aircraft.

A calibrated level was used to ensure the aircraft was level (fore and aft and laterally) at each weighing

Aircraft was weighed utilizing the three jack points (Left Main, Right Main & Aft), four different times following the procedure specified in the Carson Helicopters maintenance manual Each scale (Red Blue & Yellow) was moved one position clock-wise to a different jack-point for each different weighing Load distribution devices were utilized between the jack lift points and the scale load cells.

The Carson Helicopters General Maintenance Manual recognized procedures and formulas were used to compute and average the individual weighing values to arrive at an aircraft weight of 12 198 3 lbs.

Equipped weight of both pilots was computed to be 385 lbs.

(See Appendices 2 & 6)

FUELING ISSUES

Aircraft was refueled after weighing from an airport FBO fuel truck with 469 gallons of Jet A (3189.2 lbs.).

MAINTENANCE ISSUES

D.A.R. David Swan did the necessary preparation and paperwork to certify the aircraft in the EXPERIMENTAL CATEGORY prior to the performance test flights

Total time since major overhaul (TTSMOH) for the General Electric CT-58-140 turbine engines installed on N 261F were as follows: No 1 engine = 285.9 hrs // No 2 engine = 415.5 hrs.

Aircraft was flown and both engine topping limits were adjusted to match the engine topping values of N612AZ as recorded on 8/4/08. These engine topping values were as follows: No. 1 engine = 101.8 Ng/ 708C T5 // No. 2 engine = 101.5 Ng / 709C T5.

PILOT ISSUES

The pilots for this project were experienced long-line pilots who were familiar with flying an SK-61 helicopter at high gross weight, relatively high density altitude, at little or no airspeed without "over-controlling" the aircraft. Over-controlling the aircraft in these conditions could hinder the aircraft's ability to operate efficiently and, thereby, compromise the ability to assess the true capabilities of the aircraft accurately. The left seat "flying pilot" was Tyler Hupp. The right seat "pilot not flying" was Jim Stone.

SAFETY ISSUES

Prior to starting the aircraft, the Command Pilot gave a thorough aircraft briefing to all aircraft occupants.

WEATHER INFORMATION ISSUES

The aircraft had three calibrated OAT gauges. Reno Stead AWOS was reporting 71F and, after converting to Centigrade, we found that two of the three OAT gauges were exactly accurate. Those two OAT gauges were the only ones used for DA computations

There were 4 GPS units in the aircraft and the "0" ground speed indication on the Garmin 530 GPS was chosen to verify we were not moving over the ground while in our 400-foot AGL testing hovers.

The aircraft airspeed indicator and the "glassy calm" lake were used to cross-reference the wind speed/direction while in the testing hovers. During the entire testing period, the lake surface remained "glassy calm" which was desirable for flight-testing purposes.

PERFORMANCE FLIGHT TESTS

N261F was flown 1.5 hours (divided into two separate flights) to accomplish the desired testing. The first flight was used to adjust the engine topping values and to do a preliminary flight test to familiarize the pilots with the desired flight procedures and to confirm that they were comfortable with the helicopter's performance during the flight procedures before boarding the remaining flight evaluators. The second flight consisted of eight separate hover performance test maneuvers.

The area around Frenchman Lake was chosen to conduct the testing. The lake was an excellent indicator of wind direction and speed and a convenient source for filling the water bucket to adjust the aircraft weight, and the terrain surrounding the lake was very similar to the terrain surrounding Helispot 44 on the Iron Complex Fire.

FLIGHT NO. 1

After departing Reno Stead airport at 1510 hours, the engine topping adjustments were made in flight while the aircraft was enroute to the testing area over Frenchman Lake, elevation 5,588 MSL (mean sea level). As documented in the on-board technical observer's notes, the first performance testing/safety flight started at a stabilized OGE (out of ground effect) hover, 200 feet over Frenchman Lake while the lake surface was indicating glassy-calm wind conditions.

The aircraft had 2,800 lbs. of fuel, the two pilots' combined weight of 385 lbs., and the combined weight for one technical observer and one aircraft mechanic of 520 lbs. on board. With the aircraft weight of 12,198 lbs., the total aircraft weight was 15,903 lbs. Since the desired testing gross weight was 19,100 lbs., the "Fast" water bucket (on a 200-foot long-line attached to the load-cell equipped cargo hook) was lowered into the lake to fill the bucket. The bucket was then lifted vertically out of the water weighing approximately 4,300 lbs., measured on the load cell. At this point, the water level was adjusted by releasing some of the water until the bucket load of water weighed 3,200 lbs., giving the aircraft a total gross weight of 19,103 lbs.

Utilizing normal pilot inputs and techniques, a normal takeoff and climb was then initiated to climb from approximately 5,800 ft. MSL up the ridge line to the desired pressure altitude of 6,700 feet. The aircraft was then stabilized in a 400-foot OGE hover and the OAT (outside air temperature) was reconfirmed to be 19C. To figure the operating density altitude, the right seat three-pointer sensitive altimeter was adjusted so that it indicated 29.92 in the Kollsman window ensuring that the altimeter would indicate when the aircraft was at 6,700 ft. pressure altitude. The 6,700 ft. pressure altitude was corrected for the 19C OAT, utilizing both an electronic density altitude computer as well as a Jeppesen CSG-1A "Slide Graphic" ("whiz-wheel") flight computer, both of which computed a density altitude of 8,673 ft.

The aircraft was able to maintain 103% NR with 94% Tq while holding a stabilized OGE hover, at a density altitude of 8,673 ft, with little or no wind - all while weighing 19,103 lbs.

At this point, the collective pitch control was slowly and intentionally pulled UP to the control's TOP PHYSICAL STOP in order to bleed the NR down as far as it would go. Engine instruments indicated both engine topping limits were reached during this collective pull at: 101.8 Ng (compressor speed) / 710C T5 (turbine temperature) for the #1 engine and 101.5 Ng / 715C for the #2 engine. With the collective control at the top physical stop, the torques went up to 95% Tq #1 engine and 96% Tq #2 engine. The NR (main rotor RPM) decayed down to 94% NR and stabilized there, not going any lower. (NR Precautionary Range = 100% to 91% NR) The IVSI (instantaneous vertical speed indicator) was indicating a slight vertical rate-of-climb of up to 200 FPM (foot-per-minute).

While in the 200-FPM stabilized climb, the following power-train values were noted: 94% NR; 95% Tq #1 engine, 96% Tq #2 engine; 710C T5 #1 engine, 715C T5 #2 engine; 101.8% Ng #1 engine, 101.5 Ng #2 engine. To complete the test, the collective was then pushed down 1 inch which resulted in a 2% decrease in engine torque and the NR increasing to 100% NR in 2 seconds.

Only normal pilot inputs and techniques were used during the test.

The aircraft then flew back to Reno-Stead airport, off-loaded the aircraft mechanic and loaded three more technical observers. With the passenger change (new passenger weight of 860 lbs.) and, considering the fuel burn from the first flight, the aircraft weight was re-calculated to be 15,743 lbs.

FLIGHT NO. 2

The second flight was used to accomplish eight separate hover performance tests that were similar to the hover performance test maneuver done on the first safety flight. The first five tests were to be done at the desired test weight of 18,500 lbs GW (gross weight). These tests were all done at slightly different GWs due to the weight of the fuel being burned during the tests; therefore, the aircraft's GW was slightly higher than 18,500 lbs. at the beginning of the five tests and slightly lower at the end. With the aircraft weighing 15,743 lbs. before picking up water, 2,757 lbs. of water in the bucket was needed to bring the aircraft GW up to the desired testing weight of 18,500 lbs.

With the 15,743-lb. aircraft back over Frenchman Lake in a 200-foot stabilized hover, the water bucket was lowered into the lake to fill it. The water bucket was then lifted vertically out of the water weighing approximately 4,000 lbs. The water level was then intentionally adjusted down to 2,900 lbs. giving a gross aircraft weight of 18,643 lbs. for the first of the next five tests.

Utilizing normal pilot inputs and techniques, a normal takeoff and climb was initiated to climb the ridge line to the desired pressure altitude of 6,550 feet. The aircraft was then stabilized in a 400-foot OGE hover and the OAT was reconfirmed to be 19C. To figure the operating density altitude, the right seat three-pointer sensitive altimeter was still adjusted so that it indicated 29.92 in the Kollsman window ensuring that the altimeter would indicate when the aircraft was at 6,550 ft. pressure altitude. The 6,550 ft. pressure altitude was corrected for the 19C OAT, utilizing both an electronic computer as well as a Jeppesen CSG-1A "Slide Graphic" ("whiz-wheel") flight computer, both of which, yielded a density altitude of 8,490 ft.

The aircraft was able to hold 103% NR with 92% Tq while holding a stabilized OGE hover at a density altitude of 8,673 ft, with little or no wind at a weight of 18,643 lbs. On all the test flights, the wind speed was constantly being evaluated by cross-checking the glassy-calm surface of the lake, the airspeed indicator, the aircraft position over the ground visually, and the ground speed readout of the aircraft's Garmin 530 GPS.

At this point, the collective pitch control was slowly and intentionally pulled up to the control's top physical stop in order to bleed the NR down as far as it would go. Engine instruments indicated both engine topping limits were reached during this collective pull at: 101.8 Ng / 708C

T5 for the #1 engine and 101.5 Ng / 709C T5 for the # 2 engine. With the collective control at the top physical stop, the torques went up to 97% Tq for #1 engine and 97% Tq for #2 engine. The NR decayed down to 94% NR, stabilized there and would not go below that point. (NR Precautionary Range = 100% to 91% NR) The IVSI was indicating a slight vertical rate-of-climb of up to 100 FPM

To complete test #1, the collective pitch was then pushed down 1 inch that resulted in a 2% decrease in torque which, in turn, resulted in the NR increasing to 100% NR within 2 seconds. Test data for tests #2, 3, 4, and 5 were very similar to the test data for test #1. On every hover test in this group of 5 tests at the approximate test GW of 18,500 lbs, the aircraft was able to hold a hover at 103% NR with 92% Tq with no indication of wind. Every time the collective pitch control was pulled up to the top physical stop, the engines read the same topping numbers of 708C T5 and 101.8% Ng for engine #1 and 709C T5 and 101.5% Ng for engine #2. Both engine torques read 97% each and the NR decayed down to (and stabilized at) 94% NR but would not go lower than 94% NR. At the end of each test, each time the collective was lowered 1 inch (approximately 2% Tq), the NR recovered to 100% within 2 seconds

(See Appendix 1 for test result data)

The second battery of performance hover tests in flight # 2 consisted of three test hovers at a desired aircraft GW of 19,100 lbs. or more. These tests were all at slightly different GWs due to the weight of the fuel being burned during the tests; therefore, the load of water for these final three tests was intentionally adjusted to bring the gross weight of the aircraft to approximately 19,400 GW or higher.

At this point in the flight, the aircraft, pilots, test observers, and the remaining 1,900 lbs. of fuel weighed 15,343 lbs To bring the aircraft weight up to 19,400 lbs., the load of water in the bucket needed to weigh 4,057 lbs. With the aircraft over Frenchman Lake in a 200-foot stabilized hover, the water bucket was lowered into the lake. The water bucket was then lifted vertically out of the water weighing approximately 4,500 lbs. measured by the load cell. The water load was then intentionally adjusted to 4,200 lbs., making the gross aircraft weight 19,543 lbs. for the first of the last three tests.

Utilizing normal pilot inputs and techniques, a normal takeoff and climb was initiated to climb the ridge line to the desired pressure altitude of 6,600 feet. When the aircraft reached 6,600 ft. PA, the aircraft was never actually stabilized at the planned 400-foot OGE hover before beginning the hover test maneuver. The IVSI indicated that the aircraft had a rate of descent of 150 FPM when the test was initiated. Due to the existing rate of descent with no wind at the beginning of the maximum collective pitch pull, the aircraft showed signs of "settling with power" and the descent rate increased to 300 FPM. At this point, the pilots elected to abort the test sequence since they wouldn't be able to arrest the increasing rate of descent without increasing airspeed and reducing collective pitch, either of which would compromise the test results.

Hover test #7 was performed at an aircraft GW of 19,493 lbs. When the aircraft was in a stabilized hover at a density altitude of 8,490 ft, it was able to maintain the stabilized hover with power settings of 94% Tq and 103% NR. However, once the collective was slowly pulled up to its physical stop, the NR decayed to and stabilized at 94% NR. At 94% NR, both torque readings at 97% Tq and both engines at their topping limits, a sustained 300-FPM rate of descent developed. To complete test #7, the collective pitch was lowered 1 inch and the NR recovered to 100% NR within 2 seconds and the pilot applied cyclic to establish forward flight and the helicopter began climbing.

The last test (test #8) was done at an aircraft GW of 19,393 lbs. and a density altitude of 8,551 feet. (6,600 ft. PA and 19C OAT) With the aircraft maintaining a stabilized hover at 6,600 feet PA, the collective pitch was slowly pulled up to its top physical stop. During this collective pitch pull, both engines reached their topping limits of: 101.8% Ng / 708C T5 for engine #1 and 101.5 Ng / 709C T5 for engine #2. Both engine torques were indicating 97% Tq. The NR decayed to 94% NR and stabilized there with a slight 100-FPM rate of descent developing. As previously planned, the right-seat pilot then reduced the #2 SSL (speed selector lever) which reduced the #2 engine torque down to 70% Tq. With the 27% torque loss of the #2 engine, the NR rapidly decayed down to 92% NR without stabilizing and the aircraft quickly developed a 500- to 600-foot rate of descent. At that point (simultaneously), the collective pitch was reduced slightly as the SSL was being pushed full forward to regain NR, the nose of the aircraft was lowered to gain enough airspeed to recover from the test maneuver, and the aircraft was flown into a climb.

Flight test # 8 concluded all of the planned performance test flight maneuvers.

On all the test flights, the wind speed was being constantly evaluated by cross-checking the glassy-calm surface of the lake, the airspeed indicator, aircraft position over the ground visually, and the ground speed readout of the aircraft's Garmin 530 GPS.

Documentation of flight data for the eight test flight maneuvers in flight # 2 was accomplished by video tape of the instrument panel indications, two technical observers taking notes and the pilot's verbal callout of data Post-flight discussions also took place between the five pilots on board the test flight aircraft to discuss the flight characteristics observed. The five pilots' total helicopter flight time is estimated to be in excess of 60,000 hours. The video recording of the instrument panel was reviewed dozens of times to confirm the flight data noted during the performance test flights.

(See Appendix # 1 for flight data)

Report By ________________________

Russell G. Whipple
Whipple Aviation Services, LLC

APPENDIX 1

Hover Test Flight Data

Appendix 1

HOVER TEST FLIGHT DATA

FLIGHT # 2

CHI PERFORMANCE TEST FLIGHT				
RENO, NV // 11-03-09				
SK-61 N // Tail Number N 261 F	Test Flight # 1	Test Flight # 2	Test Flight # 3	Test Flight # 4
FLIGHT CRITERIA				
Pressure Altitude	6550 FT	6550 FT	6650 FT	6600 FT
Outside Air Temperature	19C	19C	18C	18C
Density Altitude	8490 FT	8,490 FT	8,500 FT	8,450 FT
Wind Speed	0 TO 3 MPH	0 TO 3 MPH	0 TO 3 MPH	0 TO 3 MPH
AIRCRAFT GROSS WEIGHT (GWT)	18,643 LBS	18,518 LBS	18,418 LBS	18,368 LBS
FUEL LOAD // H2O ON BOARD (LBS)	2300 // 2900	2175 // 2900	2075 // 2900	2025 // 2900
HIGHEST TORQUES (#1 eng.// #2 eng.)	97% // 97%	97% // 97%	97% // 97%	97% // 97%
TURBINE TEMPs (# 1eng // #2 eng)	708C // 709C	708C // 709C	708C // 709C	708C // 709C
GAS PRODUCER RPM (#1 eng //#2 eng)	101.8% // 101.5%	101.8% // 101.5%	101.8% // 101.5%	101.8% // 101.5%
LOWEST MAIN ROTOR RPM (NR)	94% NR	94% NR	94% NR	94% NR
RATE OF CLIMB (+/-)	+100 FPM	0 FPM	+ 100 FPM	+100 FPM

FLIGHT CRITERIA	Test Flight # 5	Test Flight # 6	Test Flight # 7	Test Flight # 8
		Aborted		
Pressure Altitude	6600 FT	6600 FT	6550 FT	6600 FT
Outside Air Temperature	19C	19C	19C	19C
Density Altitude	8,551 FT	8,550 FT	8490 FT	8,550 FT
Wind Speed	0 TO 3 MPH	0 TO 3 MPH	0 TO 3 MPH	0 TO 3 MPH
AIRCRAFT GROSS WEIGHT (GWT)	18,300 LBS	19,543 LBS	19,493 LBS	19,393 LBS
FUEL LOAD // H2O ON BOARD (LBS)	1950 // 2900	1900 // 4200	1850 // 4200	1750 // 4200
HIGHEST TORQUES (#1 eng.// #2 eng.)	97% // 97%	97% // 97%	97% // 97%	97% // 70%***
TURBINE TEMPs (#1 eng // #2 eng)	708C // 709C	708C // 710C	708C // 710C	708C // 600C***
GAS PRODUCER RPM (#1 eng /# 2 eng)	101.8% // 101.5%	101.8% // 101.5%	101.8% // 101.5%	101.8% // 101.5%
LOWEST MAIN ROTOR RPM (NR)	94% NR	94% NR	94% NR	92% NR***
RATE OF CLIMB (+/-)	+ 300 FPM	- 250 FPM	-300 FPM	-600 FPM***

94% NR recovered to 100% NR within 2 seconds with a slight reduction of collective pitch in all 8 test flights

***#2 Engine pulled back to 70% TQ at end of test to observe NR /ALT loss

APPENDIX 2

CHI General Maintenance Manual, Wt. & Bal. Procedures, Checklist & Worksheets

CHAPTER 12

WEIGHT AND BALANCE

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12-1. WEIGHT CONTROL PROCEDURES, GENERAL

(a) Aircraft operated by our company shall be weighed every thirty-six (36) calendar months to determine the aircraft's empty weight and corresponding center of gravity positions.

(b) It shall be the responsibility of the Director of Maintenance to monitor and record all weight changes, in the equipment list, affecting the aircraft.

(c) When the accumulated changes to the operating or basic weight and/or center of gravity position exceed plus or minus one-half of one percent (1/2 of 1%) of the maximum landing weight the loading data must be revised accordingly to reflect the changes.

(d) The results of an actual weighing or the re-established weight as described above will be recorded on Form No. 80-285. One copy will be retained in the Aircraft Flight Manual and one in the maintenance department as part of the aircraft permanent records.

12-2. SCALES

Any acceptable scale may be used for weighing provided they are properly calibrated and used in accordance with the manufacturer's instructions. Scales will be calibrated by the manufacturer or other certifying agency within one (1) year prior to weighing an aircraft or as approved for the repair facility performing the weighing unless otherwise indicated.

12-3. PREWEIGHING CHECKLIST (Form No. 80-284)

(a) Prior to actual aircraft weighing, the Preweighing checklist (Form 80-284) will be completed in its entirety by the maintenance department.

(b) The completed Preweighing checklist will be retained in the maintenance department until the aircraft is reweighed.

(c) If aircraft weighing is being performed by a repair facility which is on the list of approved repair facilities it is acceptable to use their preweigh checklist, provided their checklist includes updating of the equipment checklist and the scale calibration date is recorded.

(d) The completion of this form is self-explanatory.

(e) Insure A/C is configured in accordance with approved data.

CARSON HELICOPTER SERVICES, INC.

PREWEIGHING CHECKLIST

Form 80-284

Aircraft Number	Aircraft Serial No.	Location
N261F	61771	Stead Airport, Reno

ACTION	TECHNICIAN INITIALS
1. Aircraft clean and dry.	[redacted]
2. Aircraft configured I/A/W Maintenance Manual	[redacted]
3. All extraneous equipment and materials removed from the aircraft	[redacted]
4. Using an updated equipment list (CHART A), confirm all operating equipment that has a fixed location is installed and in place.	[redacted]
5. Aircraft placed in normal flight configuration I/A/W Maintenance Manual	[redacted]
6. Record the weighing points to be used in inches and tenths from the datum point as per the appropriate maintenance manual.	[redacted]
7. Scale Manufacturer — Left: Revere; Right: Revere; Nose/Tail: Revere Scale Serial No — Left: 701737; Right: 701729; Nose/Tail: 701732 Scale Type — Left: Load Cell; Right: Load Cell; Nose/Tail: Load Cell Current Calibration Date — Left: 9-28-09; Right: 9-28-09; Nose/Tail: 9-28-09	[redacted]
8. Read and follow any instructions given by the scale manufacturer.	[redacted]
9. The aircraft and scales are ready for weighing	[redacted]

Technician Name:	Technician Signature:	Date
Tito A Thornton	[redacted]	11-03-09

Weight and Balance Notes #1

Form 80-282

Aircraft Reg #: N267F	Aircraft Serial Number: 61771	Location: Stead Airport, Reno

Weigh #1		Weigh #2		Weigh #3		Total	Avg
(B) L/H Main (Color)	4874	+ (Y) L/H Main (Color)	4862	+ (R) L/H Main (Color)	4893.4	= 14629.4/3 =	4876.4
(R) R/H Main (Color)	5068.5	+ (B) R/H Main (Color)	5093	+ (Y) R/H Main (Color)	5105	= 15266.5/3 =	5088.7
(Y) Tail (Color)	2240	+ (R) Tail ~~L/H Main~~ (Color)	2226.7	+ (B) Tail ~~L/H Main~~ (Color)	2233	= 6699.7/3 =	2233.2
	12182.3		12181.7		12231.4	Total Weight	12198.3

Scale Verification

(Rotate load cells 1 jack clockwise)

Avg. Readings from above	Load Cell Verification Readings (Not to Exceed +/- 20 LBS)
( ) L/H Main 4876.4 LBS (Color)	(B) L/H Main 4861 LBS DIFF +/- 15.4 (Color)
( ) R/H Main 5088.7 LBS (Color)	(R) R/H Main 5107.2 LBS DIFF +/- 18.5 (Color)
( ) TAIL 2233.2 LBS (Color)	(Y) TAIL 2230 LBS DIFF +/- 3.2 (Color)
TOTAL 12198.3 LBS	TOTAL 12198.2 LBS DIFF +/- .1

Technician Name: Tito Thornton	Signature: [redacted]	Certificate & #: A&P [redacted]

Weight and Balance Notes #2

Form 80-283

Aircraft Reg #	Aircraft Serial Number	Location

Calculations

Notable Equipment List Changes

–		
–		
–		
–		
–		
Technician Name:	Signature	Certificate & #.

12-4. PROCEDURES FOR WEIGHING AIRCRAFT

(a) The aircraft will be weighed in a zero wind factor, usually in a closed hangar. There are several acceptable methods of weighing an aircraft. Mainly, the difference is caused by type of scales

(b) When electric scales are used, the aircraft will be weighed at the jack points and in the fight level position I/A/W the applicable aircraft Maintenance Manual

CAUTION: It should be noted that because leveling is extremely critical close attention should be given to this action and strict adherence to applicable aircraft model leveling procedures shall be followed.

(c) When platform scales are used, the aircraft is weighed at the main and tail wheels.

(d) When the aircraft is weighed at the jack points, the station reference will be adequate to establish the arms as they are at fixed positions on the aircraft. This is the prefered method of weighing our aircraft

(e) When the aircraft is weighed at the main wheels, the arms from the datum to the weighing points must be established by measurement as the wheels can be shifted by inflation of the struts or be misaligned. The measurement can be found by using plum bobs, chalk string and a tape measure.

NOTE: There are other methods to weigh an aircraft and that the future may bring new and different equipment to the weighing procedure. Our company reserves the right to use other equipment than referenced above and develop new procedures as needed. These new procedures will, if used, become a part of this manual by way of revision

(f) The aircraft shall be weighed three (3) times. The sum of which shall be divided by three (3) and considered as the true aircraft weight. Between each weighing ensure the load cells are completely unloaded and zeroed as per weighing system manual

(g) Load Cell Verication Procedure: After the weighing procedure has been completed.Ie; the sum of (3) three weighings has been annotated. Rotate load cells clockwise (1) one position. Reweigh. If the weights obtained from Individual cells differ the average of previous weighings by Plus+ or Minus 20 pounds the weighing procedure must be considered to be flawed. Reread instructions to ensure procedures are being followed correctly. If the results remain the same the scales must be considered suspect and tagged and sent in for calibration. The aircraft will need to have its weight and balance completed on a acceptable set of scales.

(h) Notes Page. This page shall be used during the aircraft weighing procedure for all your measurements, calculations, and notes. It shall be submitted as a part of your weight and balance documentation package

12-5. AIRCRAFT ACTUAL WEIGHT AND HORIZONTAL BALANCE REPORT, CHART B (Form 80-287)

(a) The Aircraft Weight and Balance Report will be used each time an aircraft is weighed. It is the responsibility of the Director of Maintenance to verify the actual weighing and completion of Form 80-287. An A&P mechanic who has been trained in company GMM weight and balance procedures may be assigned to perform the weighing.

****NOTE****

Form 80-287 is specific to the Sikorsky S-61N and is used in this manual as an example. Other aircraft types will differ in Station Numbers and Weight Point Locations. Forms containing equivalent data are acceptable.

(b) If aircraft weighing is being performed by a repair facility which is on the list of approved repair facilities it is acceptable to use their Aircraft Weight and Balance Report X if it contains equivalent data

(c) One copy of CHART B (form 80-287) will be retained in the maintenance department as part of the aircraft permanent records and one copy will be retained in the Aircraft Flight Manual

(d) Form 80-287 will be completed as follows

AIRCRAFT WEIGHT AND BALANCE REPORT Page 1 of 2

(1) Enter the name of the agency or person performing the weighing procedure.

(2) Enter the date the weighing took place here

(3) Enter the aircraft registration number here

(4) Enter AIRCRAFT SERIAL NUMBER

(5) Enter LEFT MAIN SCALE number here.

(6) Enter the LEFT MAIN/SIDE SCALE READING here

(7) Enter the TARE reading here

(8) Subtract the TARE from the LEFT MAIN/SIDE SCALE READING to arrive at a NET WEIGHT and enter here

(9) Enter RIGHT MAIN SCALE number here.

(10) Enter the RIGHT MAIN/SIDE SCALE READING here

(11) Enter the TARE reading here

(12) Enter TAIL SCALE number here

(13) Enter the NOSE/TAIL SCALE READING here.

(14) Enter the TARE here

(15) Subtract the TARE reading from the NOSE/TAIL SCALE READING to arrive at a NET WEIGHT and enter here.

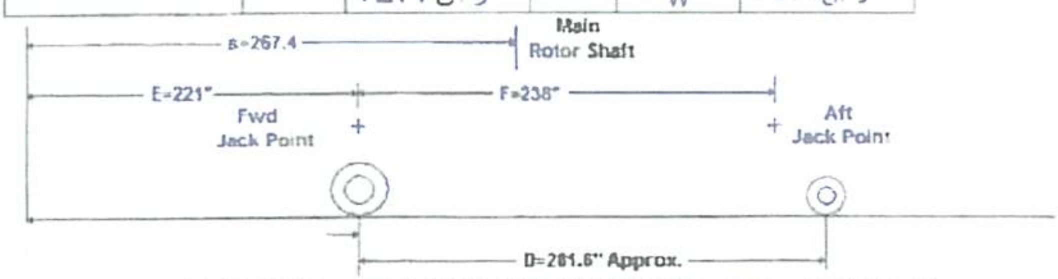
(16) Total LEFT MAIN, RIGHT MAIN, AND NOSE/TAIL WEIGHT and enter here

AIRCRAFT ACTUAL WEIGHT AND HORIZONTAL BALANCE, CHART B
S-61N MODEL HELICOPTER "L" GEAR INSTALLED (Form 80-287)

Prepared By: Tito A Thornton

Date 11-Ø3-Ø9 Reg No N261F Serial No 61771

SCALE POSITION	SCALE No.	SCALE READING (lbs)	TARE	SYMBOL	NET WEIGHT
LEFT MAIN POINT	7Ø1737	4876.1	Ø	Wl	4876.1
RIGHT MAIN POINT	7Ø1729	5Ø88.7	Ø	Wr	5Ø88.7
NOSE/TAIL POINT	7Ø1732	2233.2	Ø	Wt	2233.2
TOTAL WEIGHT		12198.3		W	12198.3



CENTER OF GRAVITY TO FORWARD DATUM (HORIZ. DIST. – AS WEIGHED)

Weighing on Wheels $E + \frac{Wl\,(D)}{W}$ __________ =

Weighing on Jack Points $E + \frac{Wl \times F}{W}$

CORRECTED WEIGHT AND HORIZONTAL BALANCE

ITEMS ADDED & SUBTRACTED	WEIGHT (lbs)	HORIZONTAL DIST (in) C.G. TOFWD DATUM	MOMENT (lb. in.)
Aircraft as Weighed			
Plus -			
Minus -			
TOTAL EMPTY/GROSS WEIGHT			
BALANCE (corrected)	Horizontal Dist. – s =	in. Fwd/Aft of Main Rotor Centroid	

Form # 80-287

Witnessed By: ________________

12-6. WEIGHT AND BALANCE / EQUIPMENT CHANGE LIST (CHART C) (Form 80-285)

(a) The purpose of Form 80-285 is to provide a record of changes to an individual aircraft's weight and balance and data on current basic operating weight and center of gravity location brought about by modifications, alterations, repairs, or changes in configuration with accumulated changes to the operating weight exceeding plus or minus one-half of one percent (1/2 of 1%) of the maximum landing weight

(b) This form is initiated and is kept current by the maintenance personnel assigned to the aicraft. A copy will be entered in the Aircraft Flight Manual and be current to the aircraft configuration prior to all flights. Any time the Chart C is amended a copy shall be submitted to the main office as per Chap 3 para 3-2, with the corresponding AFML page containing the return to service sign off for the Item removed or installed.

(c) The Weight and Balance/Equipment Change List will be completed as follows:

(1) Enter make and model of aircraft

(3) Enter aircraft registration number or other identification reference

(4) Enter aircraft serial number

(5) Enter page number (corresponding with previous page if applicable)

(6) Enter aircraft date, weight, moment, and center of gravity from "Chart B-Form 80-287)

(6) Enter date weight and balance change was made

(10) Check if change is a removal or installation and enter description of items removed or installed

(11) Enter weight of item(s) removed or installed with proper sign (+ or -) for removal or installation

NOTE

If weight of item to be removed or installed is not listed on Chart "A" weight must be obtained by physical weighing of individual item(s).

(12) Enter arm of item removed or installed

(13) Multiply weight by arm and enter moment

(14) Compute all Weights being careful to observe + or - signs and enter newly established basic empty weight

(15) Add all Moments, being careful to observe + or - signs and enter new moment

(16) Divide moment by basic empty weight and enter new center of gravity

CHART C -- BASE WEIGHT AND BALANCE RECORD										Form # 80-285		
Make & Model				Reg. No.		Serial No.				Page No.		
DATE (MMDDYY)	ITEM NUMBE R		DESCRIPTION OF ARTICLE OR MODIFICATION	WEIGHT CHANGE						CURRENT TOTAL BASIC AIRCRAFT		
				ADDED (+)			REMOVED (-)					
	IN	OUT		WEIGHT	ARM	MOMENT	WEIGHT	ARM	MOMENT	WEIGHT	MOMENT	C.G

12-7. DERIVATION OF BASIC OPERATING WEIGHT CHART D

Once the aircraft has been weighed and a Basic Equipped Weight has been established and computed, it will be necessary to compute a Basic Operating Weight (BOW). For procedure in determining the Basic Operating Weight refer to the Carson Helicopter Services, Inc. General Operations Manual Appendix B "Weight and Balance".

APPENDIX 3

N261F Chart A
Dated 10-14-09

Chart A - Empty weight Checklist 13Mar.09 10-May-09 1-Jun-09 14-Oct-09

Aircraft Model- S61N - S/N 61771

as weighed Rev. 1 as weighed as weighed

Item Number	ITEMS AND LOCATION GROUPED BY COMPARTMENT	Weight	Arm	Moment/100	Delivery Equipment	Check 1		Check 2		Check 3		Check 4		Check 5		Check 6		Check 7		Check 8	
						In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry
A	Cockpit Compartment (32-110)																				
A-1	Indicator, Airspeed, B12961-04-003 (2)	2.0	61.0	1.2		X		X		X		X									
A-2	Altimeter, 5934P-3	1.5	61.0	0.9		X		X		X		X									
A-3	Altimeter, 5934P-3	1.5	61.0	0.9		X		X		X		X									
A-4	Indicator, Altitude, Compass System (HZ-6B) Sperry (2)	14.0	62.0	8.7		O		O		O		O									
A-5	Indicator, Vertical Gyro,4005-AC-LEAR (2)	9.0	62.0	5.6		X		X		X		X									
A-6	Indicator,Vertical Speed, RC-30-V-10) (2)	3.0	64.0	1.9		X		X		X		X									
A-7	Indicator, Course, 331A-3F (1)	3.0	64.0	1.9		O		O		O		O									
A-8	Clock, W33-7540-10 (2)	2.0	64.0	1.3		O		O		O		O									
A-9	Clock, M803 (2)	1.2	64.0	0.8		X		X		X		X									
A-10	Tachometer, Gas Generator, 8DJ81 (2)	3.0	61.0	1.8		X		X		X		X									
A-11	Torquemeter, 6300-C38A-155-31 (2)	3.0	63.0	1.9		X		X		X		X									
A-12	Tachometer, Triple, B31521-10-008 (2)	6.0	64.0	3.8		X		X		X		X									
A-13	Misc. Instruments:			0.0																	
	* Indicator,Hydraulic Press, SR-152A Type 3 (2)	1.0	63.0	0.6		X		X		X		X									
	*Indicator,Trans, Oil Temp, 16382	0.5	63.0	0.3		X		X		X		X									
	*Indicator,Trans, Oil Press, SR-152AType 3	0.5	63.0	0.3		X		X		X		X									
	*Indicator, Eng, Oil Press, SR151A Type 2 (2)	1.0	62.0	0.6		X		X		X		X									
	*Indicator, Eng, Oil Temp, 16382) (2)	1.0	62.0	0.6		X		X		X		X									
	*Indicator, Eng, Fuel Press, SR-151A) (2)	1.0	62.0	0.6		X		X		X		X									
	*Indicator, PTIT, BH 165R-5 (2)	2.0	62.0	1.2		O		O		O		O									
	*Indicator, PTIT, Diamond J, 81000-044 (2)	1.2	62.0	0.7		X		X		X		X									
	*Indicator, Fuel Quantity, 393086-43708	1.0	62.0	0.6		X		X		X		X									
	*Indicator, Fuel Qty, 393004-01-884 (2)	2.0	62.0	1.2		X		X		X		X									
	*Volt\Ammeter, AC, 570-382	1.0	63.0	0.6		X		X		X		X									
	*Volt\Ammeter, DC, NAF 1225-300	1.0	63.0	0.6		X		X		X		X									
A-14	*Standby Compass, KCA104W (2)	1.5	87.0	1.3		X		X		X		X									
A-15	Cushions, Seat, Pilot & Co-Pilot (2)	6.0	92.0	5.5		X		X		X		X									
A-16	Safety Belt, 1101155-0 (2)	4.0	97.0	3.9		X		X		X		X									
A-17	Seats, Pilot & Co-Pilot, 677R20000	44.0	99.0	43.6		X		X		X		X									
A-18	Bumpers, Seats, Pilot & Co-Pilot, KLH4T0024-	0.6	110.0	0.7		O		O		O		O									
A-19	Cushions, Back, Pilot & Co-Pilot	4.0	103.0	4.1		X		X		X		X									
A-20	Shoulder Harness (2)	2.0	103.0	2.1		X		X		X		X									
A-21	Jump Seat and safety Belt	7.0	104.0	7.3		O		O		O		O									
A-22	First Aid Kit	2.0	108.0	2.2		O		O		O		O									

Chart A - Empty weight Checklist

13Mar.09 10-May-09 1-Jun-09 14-Oct-09

Aircraft Model- S61N - S/N 61771 -

as weighed Rev. 1 as weighed as weighed

Item Number	ITEMS AND LOCATION GROUPED BY COMPARTMENT	Weight	Arm	Moment/100	Delivery Equipment	Check 1		Check 2		Check 3		Check 4		Check 5		Check 6		Check 7		Check 8	
						In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry
A-23	Portable Fire Extinguisher, 6120-71117	7.0	108.0	7.6		X		X		X		X									
A-24	Free Air Temp Indicator, 2289	0.2	71.0	0.1		X		X		X		X									
A-25	Light, Map, 15-007-3 (2)	1.0	100.0	1.0		X		X		X		X									
A-26	Windshield washer bag	4.0	108.0	4.3		O		O		O		O									
A-27	Windshield wiper Instl.	11.0	52.0	5.7		X		X		X		X									
A-28	HSI, Astronautics, 11320-5	6.5	63.0	4.1		X		X		X		X									
A-29	HSI, Astronautics, 11320-5	6.5	63.0	4.1		X		X		X		X									
A-32	Panel, Annunciator Switch, Mid Continent, MD41-1468A	0.5	64.0	0.3		X		X		X		X									
A-33	Panel, Annunciator Switch, Mid Continent, MD41-1468A	0.5	64.0	0.3		X		X		X		X									
A-34	Transponder, GTX330	4.2	75.2	3.2		X		X		X		X									
A-35	Encoder, Altitude, Transcal, SSD120-30A-RS232	0.8	81.0	0.6		X		X		X		X									
A-36	Transceiver, GPS\NAV\COM, #1, GNS- 430	6.5	61.0	4.0		X		X		X		X									
A-37	Transceiver, GPS\NAV\COM, #2, GNS- 430	6.5	62.0	4.0		X		X		X		X									
A-38	Indicator, Altitude, Stand-by, 4300-412	3.0	68.0	2.0		X		X		X		X									
A-39	Transceiver, VHF\FM, TDFM-136	6.0	76.0	4.6		X		X		X		X									
A-40	Transceiver, VHF\FM, TFM-500	6.0	76.0	4.6		X		X		X		X									
A-41	Display, Multifunction, MX-20	4.7	61.0	2.9		X		X		X		X									
A-42	Indicator, DME Control, KD1572	1.0	63.0	1.0		O		O		O		O									
A-43	Indicator, Radar Altimeter, RA-220 (2)	1.0	63.0	0.6		X		X		X		X									
A-44	Panel, Fuel Level Selector	1.0	86.0	0.9		X		X		X		X									
A-45	Panel, Audio, A-710, LH	2.4	80.0	1.9		X		X		X		X									
A-46	Panel, Audio, A-710, RH	2.4	80.0	1.9		X		X		X		X									
A-47	Control, CVR,1634-02	0.3	81.0	0.2		X		X		X		X									
A-48	CVR-30	13.2	101.0	13.3		X		X		X		X									
A-49	Amp, Summing, CVR, A6912-1	1.0	93.0	0.9		X		X		X		X									
A-50	Switch, Intertia, CVR, 3LO-87118	0.3	92.0	0.3		X		X		X		X									
A-51	Microphone, CVR, 16301-02	0.1	90.1	0.1		X		X		X		X									
A-52	Indicator, C-39, E84 Load Weigh System	0.4	63.0	0.3		X		X		X		X									
A-53	Indicator, Analog, E84 Load Weigh System	0.4	76.0	0.3		X		X		X		X									
A-54	Control, Cargo Hook	1.0	75.0	0.8		X		X		X		X									
A-55	Panel, ICS Tie Control	0.3	78.5	0.2		X		X		X		X									
A-56	Panel, Compass Control, 212-077-163-001	0.3	80.0	0.2		X		X		X		X									
A-57	Panel, Asst	0.3	81.0	0.2		X		X		X		X									

Chart A - Empty weight Checklist

Aircraft Model- S61N - S/N 61771 -

Item Number	ITEMS AND LOCATION GROUPED BY COMPARTMENT	Weight	Arm	Moment/100	Delivery Equipment	Check 1		Check 2		Check 3		Check 4		Check 5		Check 6		Check 7		Check 8	
						13Mar.09		10-May-09		1-Jun-09		14-Oct-09									
						as weighed		Rev. 1		as weighed		as weighed									
						In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry
A-58	Panel, ELT Control	0.3	83.0	0.2		X		X		X		X									
A-59	Panel, Landing Gear Control, A4503M8	0.5	85.0	0.4		O		O		O		O									
A-60	Panel, AFCS Control, S6190-60060-041	0.3	73.0	0.2		X		X		X		X									
A-61	Panel, AFCS Channel Monitor, S6190,60045-5	0.3	77.0	0.2		X		X		X		X									
A-62	Rotorcraft Flight Manual	10.0	103.0	10.3		X		X		X		X									
B	Electronic Compartment (32-110)																				
B-1	Landing light, RH	16.0	66.0	10.6		X		X		X		X									
B-2	Landing light, LH	16.0	68.0	10.8		X		X		X		X									
B-3	Time temp. recorded (2)	9.0	64.0	5.8		O		O		O		O									
B-4	Relay, Hartman, A927 (2)	5.0	76.0	3.8		X		X		X		X									
B-5	Compass, Gyrosyn, C14A	5.5	105.0	5.8		X		X		X		X									
B-6	Regulator, Voltage, VR1010-24-2A	1.6	73.0	1.2		X		X		X		X									
B-7	Regulator (Hartman E1597)	3.0	75.0	2.3		X		X		X		X									
B-8	Control Gyro, Lear 7000B (2)	14.0	80.0	11.2		X		X		X		X									
B-9	Transformer Rectifier, *RN167-YF1A	21.0	84.0	17.6		X		X		X		X									
B-10	Panel, Supervisory, 21817-10B (2)	6.0	77.0	4.6		X		X		X		X									
B-11	Control, Heater, CYLZ-1886-4	3.0	86.0	2.6		O		O		O		O									
B-12	Inverter, Ground, MGH228-100	14.0	84.0	11.8		X		X		X		X									
B-13	Amplifier, AFCS, 6190-60058	15.0	102.0	15.3		X		X		X		X									
B-14	Amplifier, Log, AFCS, 6192-61090	2.0	89.0	1.8		X		X		X		X									
B-15	Controller, Eng. Anti-ice, 1378-1[illegible]	11.0	103.0	11.3		X		X		X		X									
B-16	Gyro, Rate Of Turn, A2850-5 (2)	3.0	91.0	2.7		X		X		X		X									
B-17	Transceiver, DME, KDM706A	1.7	82.0	1.4		O		O		O		O									
B-18	Converter, Voltage, AK-551	1.5	93.0	1.4		X		X		X		X									
B-19	Transceiver, Radar Altimeter, RT-300	4.5	102.0	4.6		X		X		X		X									
B-20	Tracker, Satellite, Sky Connect	4.0	78.0	3.1		X		X		X		X									
B-21	Chim Unit	0.6	85.5	0.5		X		X		X		X									
B-23	Adapter, GPS, GAD-42	2.2	78.0	1.7		X		X		X		X									
B-24	Adapter, GPS, GAD-42	2.2	78.0	1.7		X		X		X		X									
B-25	Interface, Radio, NAT, AA34-300, USFS Option	0.4	76.0	0.3		X		X		X		X									
B-26	Panel, Control, PA\Siren, NAT, AA22-160, USFS Option	0.3	77.0	0.2		X		X		X		X									
B-27	Amplifier, PA\Siren, PA220-010, USFS Option	8.0	90.0	7.2		X		X		X		X									
B-28	Panel, Audio Interconnect, A-740	1.0	79.0	0.8		X		X		X		X									
B-29	Amplifier, Cabin PA, NAT, 250	2.4	64.0	2.0		X		X		X		X									

Chart A - Empty weight Checklist

13Mar.09 10-May-09 1-Jun-09 14-Oct-09

Aircraft Model- S6?N - S/N 61771 -

as weighed Rev 1 as weighed as weighed

Item Number	ITEMS AND LOCATION GROUPED BY COMPARTMENT	Weight	Arm	Moment/100	Delivery Equipment	Check 1 In Aircraft	Check 1 Chart C Entry	Check 2 In Aircraft	Check 2 Chart C Entry	Check 3 In Aircraft	Check 3 Chart C Entry	Check 4 In Aircraft	Check 4 Chart C Entry	Check 5 In Aircraft	Check 5 Chart C Entry	Check 6 In Aircraft	Check 6 Chart C Entry	Check 7 In Aircraft	Check 7 Chart C Entry	Check 8 In Aircraft	Check 8 Chart C Entry
B-30	Transceiver\Antenna, Wx Radar, ART2000	9.9	23.0	2.3		X		X		X		X									
B-31	Controller, Pulse Lights, 11505-4	2.0	69.0	1.4		X		X		X		X									
B-32	Battery, Nose (Concord RG-380E/44)	85.0	45.0	38.3		X		X		X		X									
B-33	Vibration Damper, Nose Battery	93.4	45.0	42.0		O		O		O		O									
C	Cabin (110-493)																				
C-1	Heater, AC, ME611-000	34.0	117.0	39.8		X		X		X		X									
C-2	Cargo Net Installation	6.0	447.5	26.9		O		X		X		X									
C-3	Cargo Net	6.8	447.5	30.4		O		X		X		X									
C-4	Board Papers, FWD Cabin RH	24.9	113.0	28.1		O		O		O		O									
C-5	Aux Battery, FWD Baggage Comp	85.0	120.0	102.0		X		X		X		X									
C-6	Hoist FloorFWD Cabin RH	28.0	152.0	42.6		O		O		O		O									
C-7	Hoist Bag, FWD Cabin RH	56.9	152.0	86.5		O		O		O		O									
C-8	Lower Hook Relay (2)	2.0	163.0	3.3		X		X		X		X									
C-9	Cabin Speaker (AI-5150CX-4)	1.2	163.0	2.0		X		X		X		X									
C-10	Cabin Speaker (AI-5150CX-4)	1.2	203.0	2.4		X		X		X		X									
C-11	Cabin Speaker (AI-5150CX-4)	1.2	203.0	2.4		X		X		X		X									
C-12	Cabin Speaker (AI-5150CX-4)	1.2	263.0	3.2		X		X		X		X									
C-13	Cabin Speaker (AI-5150CX-4)	1.2	317.0	3.8		X		X		X		X									
C-14	Cabin Speaker (AI-5150CX-4)	1.2	387.0	4.6		X		X		X		X									
C-15	Amplifier, Passenger Intercom, NAT, AA38-301	1.0	142.0	1.4		X		X		X		X									
C-16	Panel, Audio, A-710, FWD Cabin	2.4	184.0	4.4		X		X		X		X									
C-17	Panel, Audio, A-710, Rear Cabin	2.4	300.0	7.2		X		X		X		X									
C-18	Control, FM, Remote, Technisonic, RC500	1.2	329.0	3.9		O		O		O		O									
C-19	DBL Seat & Belt, Comp C1	26.0	128.5	33.4		O		O		O		O									
C-20	Single passenger seat & belts C6	19.0	167.0	31.7		O		O		O		O									
C-21	Double Seat (Sicma) & Harness, Comp C7	41.0	201.0	82.4		O		O		O		O									
C-22	Single Seat (Sicma) & Harness, Comp C7	23.5	201.0	47.2		O		O		O		X									
C-23	Double Seat (Sicma) & Harness, Comp C8	41.0	235.0	98.4		O		X		X		X									
C-24	Single Seat (Sicma) & Harness, Comp C8	23.5	235.0	55.2		O		X		X		O									
C-25	Double Seat (Sicma) & Harness, Comp C9	41.0	269.0	110.3		O		X		X		X									
C-26	Single Seat (Sicma) & Harness, Comp C9	23.5	269.0	63.2		O		X		X		X									
C-27	Double Seat (Sicma) & Harness, Comp C10	41.0	303.0	124.2		O		X		X		X									
C-28	Single Seat (Sicma) & Harness, Comp C10	23.5	303.0	71.2		O		X		X		O									
C-29	Single Seat (Sicma) & Harness, Comp C11	23.5	337.0	79.2		O		O		O		X									
C-30	Single Seat (Sicma) & Harness, Comp C13	23.5	371.0	87.2		O		O		O		O									

Chart A - Empty weight Checklist 13Mar.09 10-May-09 1-Jun-09 14-Oct-09

Aircraft Model- S8:N - S/N 61771 -

Item Number	ITEMS AND LOCATION GROUPED BY COMPARTMENT	Weight	Arm	Moment/100	Delivery Equipment	Check 1 (as weighed) In Aircraft	Check 1 Chart C Entry	Check 2 (Rev. 1) In Aircraft	Check 2 Chart C Entry	Check 3 (as weighed) In Aircraft	Check 3 Chart C Entry	Check 4 (as weighed) In Aircraft	Check 4 Chart C Entry	Check 5 In Aircraft	Check 5 Chart C Entry	Check 6 In Aircraft	Check 6 Chart C Entry	Check 7 In Aircraft	Check 7 Chart C Entry	Check 8 In Aircraft	Check 8 Chart C Entry
C-31	Double Seat (Sicma) & Harness, Comp C14	41.0	374.9	153.7		O		O		O		O									
C-32	Double Seat (Sicma) & Harness, Comp C15	41.0	405.0	166.1		O		O		O		O									
C-33	Single Seat (Sicma) & Harness, Comp C15	23.1	405.0	93.6		O		O		O		O									
C-34	Upholstered Interior	129.0	301.5	388.9		X		X		X		X									
C-35	Carpet	65.0	273.0	177.5		O		O		O		O									
C-36	Fire Extinguisher, AFT Cabin, RH	2.0	420.0	8.4		X		O		O		O									
C-37	Fire Extinguisher, FWD Cabin	2.0	120.0	2.4		X		X		X		X									
C-38	First Aid Kit, FWD Cabin, LH	2.0	110.0	2.2		X		X		X		X									
C-39	Unusable Fuel, FWD Tank	2.0	204.0	4.1		X		X		X		X									
C-40	Unusable Fuel, CTR Tank	2.0	252.0	5.0		X		X		X		X									
C-41	Unusable Fuel, AFT Tank	3.0	306.0	9.2		X		X		X		X									
C-41	Survial Kit	28.0	375.0	105.0		O		X		X		X									
C-42	USFS First Aid kit	7.5	375.0	28.1		O		X		X		X									
D	Engine & transmission compartment (180-350)																				
D-1	Starter, #1, GE 2CM270D3	35.0	179.0	62.7		X		X		X		X									
D-2	Starter, #2, GE 2CM270D3	35.0	179.0	62.7		X		X		X		X									
D-3	Oil tank, #1, S6130-80205	8.0	181.0	14.5		X		X		X		X									
D-4	Oil tank, #2, S6130-80205	8.0	181.0	14.6		X		X		X		X									
D-5	Usable Oil #1 & #2 Engines, 5 US Gal	37.9	192.5	73.0		X		X		X		X									
D-6	Unusable Oil #1 & #2 Engines, .67 US Gal	5.1	200.0	10.2		X		X		X		X									
D-7	Engine, #1, CT58-140-2	325.0	207.0	672.8		X		X		X		X									
D-8	Engine, #2, CT58-140-1	325.0	207.0	672.8		X		X		X		X									
D-9	Oil, MGB & Cooler	77.0	274.0	211.0		X		X		X		X									
D-10	Pump, Hydraulic, Primary, 66WAP200	18.0	292.0	52.6		X		X		X		X									
D-11	Pump, Hydraulic, Secondary, 66WAP200	18.0	292.0	52.6		X		X		X		X									
D-12	Generator, DC, Bendix 30E20-39	47.0	300.0	141.0		X		X		X		X									
D-13	Generator, #1, AC, Bendix, 2AE20-27A)	96.0	295.0	283.2		X		X		X		X									
D-14	Generator, #2, AC, Bendix, 2AE20-27A)	96.0	295.0	283.2		X		X		X		X									
D-15	Fire Extinguiser, #1, Engine, 891134	19.0	329.0	62.5		X		X		X		X									
D-16	Fire Extinguiser, #2, Engine, 891134	19.0	329.0	62.5		X		X		X		X									
D-17	Cooler, Transmission Oil, Dry, 8582061	28.0	332.0	93.0		X		X		X		X									
D-18	Blower, Oil Cooler	8.0	317.0	25.4		X		X		X		X									
D-19	Detector, Chip, Electric (2)	0.1	188.0	0.2		X		X		X		X									
E	Tail Cone & pylon (493-705)																				
E-1	Catwalk	4.0	543.0	21.7		X		X		X		X									

Chart A - Empty weight Checklist

13Mar 09 10-May-09 1-Jun-09 14-Oct-09

Aircraft Model- S61N - S/N 61771 -

as weighed Rev 1 as weighed as weighed

Item Number	ITEMS AND LOCATION GROUPED BY COMPARTMENT	Weight	Arm	Moment/100	Delivery Equipment	Check 1 In Aircraft	Check 1 Chart C Entry	Check 2 In Aircraft	Check 2 Chart C Entry	Check 3 In Aircraft	Check 3 Chart C Entry	Check 4 In Aircraft	Check 4 Chart C Entry	Check 5 In Aircraft	Check 5 Chart C Entry	Check 6 In Aircraft	Check 6 Chart C Entry	Check 7 In Aircraft	Check 7 Chart C Entry	Check 8 In Aircraft	Check 8 Chart C Entry
E-2	Flux valve & compensator	2.0	543.0	10.9		X		X		X		X									
E-3	Oil, IGB & TGB	5.1	687.0	35.0		X		X		X		X									
E-4	ELT, Artex 406 HM	3.1	511.0	15.8		X		X		X		X									
F	External Equipment																				
F-1	Landing Gear, Main, Fixed	375.0	221.0	828.8		X		X		X		X									
F-2	Landing Gear, Main, Retractable	971.0	221.0	2145.9		O		O		O		O									
F-3	Main tires 6.50x10	50.0	227.0	113.5		X		X		X		X									
F-4	Main tires 6.50x10	50.0	227.0	113.5		X		X		X		X									
F-5	Main tires 6.50x10	50.0	227.0	113.5		X		X		X		X									
F-6	Main tires 6.50x10	50.0	227.0	113.5		X		X		X		X									
F-7	Tail tire 6.00x6	9.0	505.0	45.5		X		X		X		X									
F-8	Ice Deflectors, Engine Intakes	33.0	154.0	50.8		O		O		O		O									
F-9	FOD Screen, Engine Intakes	30.0	167.0	50.1		X		X		X		X									
F-11	Hoist Installation	90.0	154.0	138.6		O		O		O		O									
F-12	Hoist Installation, No Winch		154.0	0.0		O		O		O		O									
F-13	Hoist Installation, Rapel Bracket,	25.5	154.0	39.3		O	X	O		O		O									
F-14	Helipro Utility Logging System	85.0	267.0	227.0		X		X		X		X									
F-15	Cabin Entry Steps, FWD	26.0	154.0	40.0		X		X		O		O									
F-16	Antenna, VHF, DMC60-1	3.1	525.0	16.3		X		X		X		X									
F-17	Antenna, VHF, DMC60-1	3.1	630.0	19.5		X		X		X		X									
F-18	Antenna, Glideslope, DMNS25-1	1.0	604.0	6.0		X		X		X		X									
F-19	Antenna, VOR, RH, DMN4-4	1.0	604.0	6.0		X		X		X		X									
F-20	Antenna, VOR, LH, DMN4-4	1.0	604.0	6.0		X		X		X		X									
F-21	Antenna, VHF\FM, Comant, CI-292-3	0.5	89.0	0.4		X		X		X		X									
F-22	Antenna, VHF\FM, Comant, CI-292-3	0.5	89.0	0.4		X		X		X		X									
F-23	Antenna, UHF, Comant, CI-275-3	0.5	70.0	0.4		X		X		X		X									
F-24	Antenna, DME, CI-105-5-100-2	0.3	89.0	0.3		X		X		X		X									
F-25	Antenna, Transponder, Comant, CI-100-2	0.3	142.0	0.4		X		X		X		X									
F-26	Antenna, VHF\FM, Comant, CI-292-3, USFS	0.5	156.0	0.8		X		X		X		X									
F-27	Antenna, VHF\FM, Comant, CI-292-3, USFS	0.5	370.0	1.9		X		X		X		X									
F-28	Antenna, GPS, RH, Trimble, 16248-20, USFS	0.4	120.0	0.5		X		X		X		X									
F-29	Antenna, GPS, LH, Trimble, 16248-20, USFS	0.4	120.0	0.5		X		X		X		X									
F-30	Antenna, GPS, GA-56	0.3	120.0	0.3		X		X		X		X									
F-31	Antenna, GPS, GA-56	0.3	120.0	0.3		X		X		X		X									
F-32	Antenna, Radar Altimeter, S67-2002 (2)	1.0	91.0	0.9		X		X		X		X									

Chart A - Empty weight Checklist 13Mar.09 10-May-09 1-Jun-09 14-Oct-09

Aircraft Model- S61N - S/N 61771 -

as weighed Rev. 1 as weighed as weighed

Item Number	ITEMS AND LOCATION GROUPED BY COMPARTMENT	Weight	Arm	Moment/100	Delivery Equipment	Check 1 In Aircraft	Check 1 Chart C Entry	Check 2 In Aircraft	Check 2 Chart C Entry	Check 3 In Aircraft	Check 3 Chart C Entry	Check 4 In Aircraft	Check 4 Chart C Entry	Check 5 In Aircraft	Check 5 Chart C Entry	Check 6 In Aircraft	Check 6 Chart C Entry	Check 7 In Aircraft	Check 7 Chart C Entry	Check 8 In Aircraft	Check 8 Chart C Entry
F-33	Antenna, ELT.	0.5	406.0	1.8		X		X		X		X									
F-34	Antenna, Satellite Phone, A72775	0.6	120.0	0.7		X		X		X		X									
F-35	Light, Strobe,30-0848-17	2.0	150.0	3.0		X		X		X		X									
F-36	Light, Strobe,30-0848-17	2.0	707.0	14.1		X		X		X		X									
F-37	Speaker, External, RH, NAT, TS100WR, USFS	3.9	221.0	8.6		X		X		X		X									
F-38	Speaker, External, LH, NAT, TS100WR, USFS	3.9	221.0	8.6		X		X		X		X									
G	Rotor and Rotor Equipment																				
G-1	Blades, Main Rotor, 61170-20201-067, BIM	1145.0	267.5	3062.9		O		O		O		O									
G-2	Fairing, Main Rotor, Upper Vertical	8.0	267.0	21.4		X		X		X		X									
G-3	Blades, Tail Rotor	31.0	705.0	218.6		X		X		X		X									
G-4	Harness, Blm, Main Rotor	6.6	267.0	17.6		O		O		O		O									
G-5	Blades,Main Rotor Carson P/N 163-101-1	1135.0	267.0	3030.5		O	X	X		X		X									
H	Additional equipment																				
H-1	Modem, C-1000A, Blue Sky System	4.8	523.0	25.1		X		X		X		X									
H-2	Mount, VS61-0628A-631, C-1000A., Blue Sky System	0.9	523.0	4.7		X		X		X		X									
H-3	Modem, D-1000C, Blue Sky System	5.6	523.0	29.3		X		X		X		X									
H-4	Mount, VS61-0628A-631, D-1000C, Blue Sky System	0.9	523.0	4.7		X		X		X		X									
H-5	Cabin Unit, 100100, Blue Sky System	1.8	110.0	2.0		X		X		X		X									
H-6	Mount, VS61-0628A-621, Cabin Unit, Blue Sky System	0.7	110.0	0.8		X		X		X		X									
H-7	Adapter, Telephone, PTA12-100, Blue Sky System	0.6	84.0	0.5		X		X		X		X									
H-8	Head, Control, ACH-1000, Blue Sky System	1.2	84.0	1.0		X		X		X		X									
H-9	Antenna, Dual Channel, S67-1575-185, includes Mount, Blue Sky System	2.1	437.0	9.2		X		X		X		X									
H-10	Life Raft, FWD	73.3	138.5	101.5		O		O		O		O									
H-11	Life Raft, AFT	73.3	371.0	271.9		O		O		O		O									
H-12	Kawak Aux. Hyd. System Model 36000	108.0	308.3	332.9		O		X		O		O									
H13	Isolair Installation Kit	16.0	149.0	23.8		O		X		X		X									
H-14	Isolair Tank Assy.	695.0	259.0	1800.1		O		O		O		O									
H-15	Isolair Hover Pump Assy	90.0	207.5	186.8		O		O		O		O									
H-16	Fwd baggage bin floor liners	20.0	187.0	33.4		O		X		O		O									

Chart A - Empty weight Checklist 13Mar.09 10-May-09 1-Jun-09 14-Oct-09

Aircraft Model- S61N - S/N 61771 -

Item Number	ITEMS AND LOCATION GROUPED BY COMPARTMENT	Weight	Arm	Moment/100	Delivery Equipment	as weighed Check 1		Rev. 1 Check 2		as weighed Check 3		as weighed Check 4		Check 5		Check 6		Check 7		Check 8	
						In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry	In Aircraft	Chart C Entry
H-17	Aft baggage bin floor liners	10.0	370.0	37.0		O		X		X		X									

APPENDIX 4

N261F Chart B Reverse
Dated 10-14-09

Chart "B" Reverse

DESCRIPTION	NET WT	HORZ	HORZ MOMENT	* MOMENT/100	LAT	LAT MOMENT	* MOMENT/100
TOTAL (As weighed) (From front side)	12287.2	261.8	3219255.6		0.0	0	
TOTAL OF ITEMS WEIGHED BUT NOT PART OF WEIGHT EMPTY	370.5		109851.3	subtracted		0	
TOTAL OF WEIGHT EMPTY ITEMS NOT IN AIRCRAFT WHEN WEIGHED	0.0		0.0	added		0	
BASIC AIRCRAFT (Post to Chart C)	11926.7	260.7	3109404.4	31094.0	0.0	0	0.0

COLUMN I						COLUMN II					
ITEMS WEIGHED BUT NOT PART OF WEIGHT EMPTY	WEIGHT	HORZ ARM	MOMENT	LAT ARM	MOMENT	WEIGHT EMPTY ITEM NOT IN AIRCRAFT WHEN WEIGHED	WEIGHT	HORZ ARM	MOMENT	LAT ARM	MOMENT
C-22 Single Seat C7	23.5	201.0	4723.5							0	0
C-26 Single Seat C9	23.5	269.0	6321.5								
C-28 Single Seat C11	23.5	337.0	7919.5								
C-23 double seat C8	41.0	235.0	9635.0								
C-25 double seat C9	41.0	269.0	11029.0								
C-27 double seat C10	41.0	303.0	12423.0								
C-34 Upholstered Interior	129.0	301.5	38893.5								
C-2 Cargo net Installation	9.0	447.6	7885.0								
C-3 Cargo net	6.5	447.6	2908.8								
C-41 Survival Kit	28.0	375.0	10500.0								
C-42 USFS First aid kit	7.5	375.0	8*2.6								
TOTAL	370.5		109851.3		0.0	TOTAL	0.0		0.0		0

REACTIONS USED

TYPE SCALE Evergreen Model 3-0057-BA-C4

SERIAL NUMBER 1078-C4

CALIBRATION DATE (MMDDYY) 03/20/09

CALIBRA[illegible] ACCURACY

REMARKS

THE MAINTENANCE DESCRIBED ABOVE HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPLICABLE STANDARDS OF AIRWORTHINESS

[redacted]

Sign Date ACA

* Enter constant used

APPENDIX 5

N261F Chart C
Dated 10-14-09

WEIGHT EMPTY and BALANCE RECORD

CONTINUOUS HISTORY OF CHANGES IN STRUCTURE OR EQUIPMENT AFFECTING WEIGHT & BALANCE

MODEL S-61N SERIAL NO

CHART C SHEET

DATE	ITEM NO		DESCRIPTION OF ARTICLE OR MODIFICATION	ADDED (+)			REMOVED (-)			RUNNING TOTAL EMPTY AIRCRAFT				
	IN	OUT		WEIGHT (LB)	HORIZONTAL MOM/100	LATERAL MOM/100	WEIGHT (LB)	HORIZONTAL MOM/100	LATERAL MOM/100	WEIGHT (LB)	HORIZONTAL MOM/100	HORIZONTAL C.G	LATERAL MOM/100	LATERAL C.G
Oct.14/09			Aircraft as Weighed							12297.2	32192.6	261.8	0.0	0.0
							Running Totals			12297 2	32192.6	261.8	0,00	0.0

APPENDIX 6

Aircraft Calibration Certificate

CALIBRATION CERTIFICATE

KIT MODEL: 5 - 0057 - BA - 4C — DATE MARCH 20, 2019

KIT S/N. 1075 - 4C

INDICATOR S/N: 1078 - 4C

ROAD RUNNER I

SCALE SYSTEM FOR VEHICLES & AIRCRAFT

CALIBRATION DATA

Lbs Applied	YELLOW S/N 1705 READING	YELLOW S/N 1705 FINAL	BLUE S/N 1853B READING	BLUE S/N 1853B FINAL
500	498	500	499	500
1000	997	1000	998	999
1500	1496	1500	497	1499
2000	1995	2000	995	1999

Lbs Applied	GREEN S/N 1036 READING	GREEN S/N 1036 FINAL	RED S/N 1065 READING	RED S/N 1065 FINAL
500	500	500	500	500
1000	999	1000	1000	1000
1500	1498	1500	1500	1500
2000	1999	2000	1999	2000

CALIBRATION TECHNICIAN [redacted]

[illegible] Scales Limited 21 Cadillac Place Nanaimo, B.C. V9R 6Z5
Phone: (250) 74_ 0093   Fax: (250) 741 0093

Scale(s) Have Been Calibrated With Certified and Traceable Test Weights

APPENDIX 7

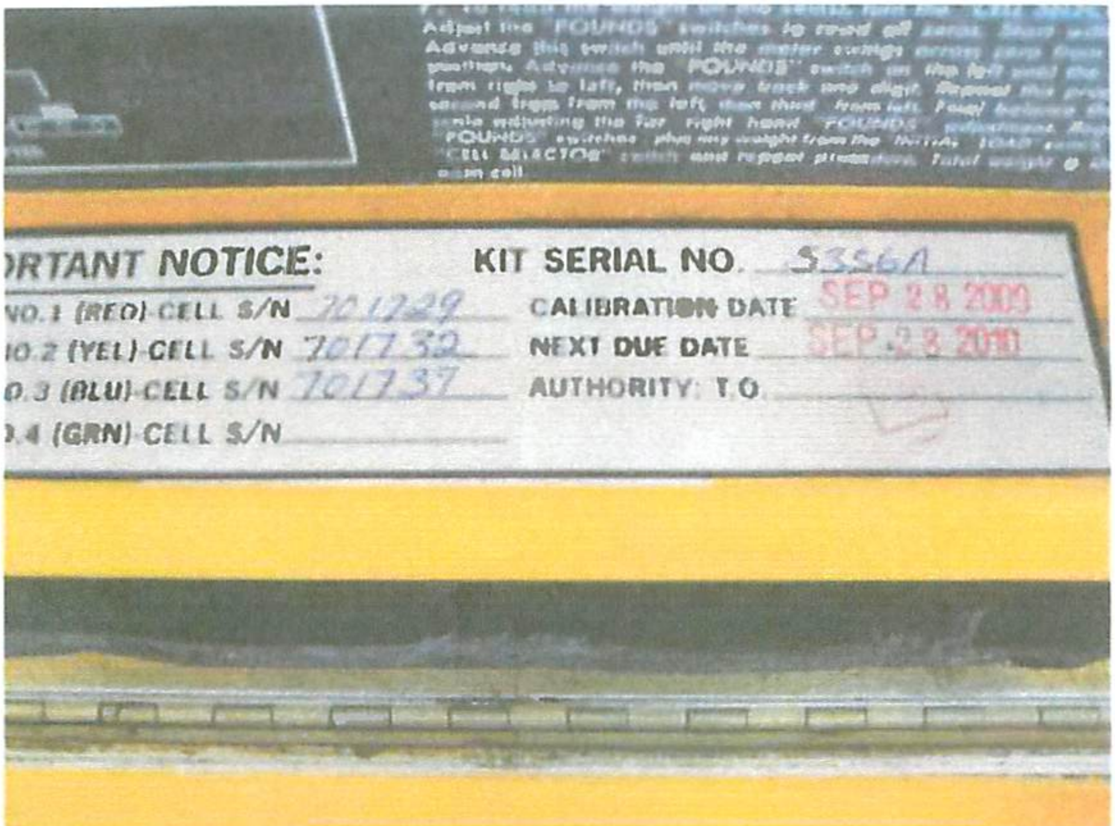
Reference Pictures

N 261F Exterior

N 261F Cockpit

N 261F Passenger Cabin

N 261F On Aircraft Scales



Scale Calibration Tag