Suppl. 8

U.S. Department
of Transportation
Federal Aviation
Administration

Engine & Propeller Directorate

New York Aircraft Certification Office
1600 Stewart Avenue
4th Floor, Suite 410
Westbury, NY 11590

FEB 1 1 2008

Mr. Jeffrey Hill
Carson Services, Inc.
952 Blooming Glen Road
Perkasie, PA 18944

Subject: Issuance of Supplemental Type Certificate(STC) SR02507NY – 600 Pound Capacity Goodrich Rescue Hoist for Sikorsky Model Helicopters

Dear Mr. Hill:

This is in reference to your letter of October 26, 2007 and subsequent correspondence requesting a Supplemental Type Certificate (STC) for installing a 600 pound capacity Goodrich Rescue Hoist System in Sikorsky Models S-61A, S-61L, S-61N, and S-61N (incorporating STC SH640NE). (Ref. FAA Project No. ST4935NY-R.)

Based on the submittal of compliance data to the regulations and satisfactory inspection and testing, we are enclosing STC SR02507NY dated February 07, 2008. In addition, please find enclosed Carson Services, Inc. Rotorcraft Flight Manual Supplements No. 8 and 9 FAA Approved February 07, 2008 which are required as part of this modification.

A copy of the STC and required documents should accompany the installation. Also, your attention is directed to the limitations and conditions specified in the STC, and to the attached copy of "Information Concerning Your Responsibility as a Holder of a Supplemental Type Certificate".

Since I am very much interested in the service we provide to the aviation community and the general public, it would be helpful if you would provide your thoughts and comments regarding how the approval process went. To gather this information, we have enclosed a short survey (with a self-addressed, stamped envelope) that I hope you will fill out and return. You will note that the return envelope is addressed to me. You may rest assured that your comments will receive my full attention and that I will hold your comments in strict confidence, should you request I do so. Please note that this customer service survey is common to all Aircraft Certification Offices within the FAA's Aircraft Certification Service and is aimed at enabling the Aircraft Certification Service to deliver the best services to each of our customers.

If you have any questions relating to the above information, please contact Mr. Raymond Reinhardt at (516) 228-7332.

Sincerely,

[redacted]

Anthony Socias
Manager, New York Aircraft Certification Office

Enclosures

United States of America
Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

Number SR02507NY

This certificate issued to Carson Helicopters Inc.
952 Blooming Glen Road
Perkasie, PA 18944

*certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part * of the * Regulations.*

Original Product - Type Certificate Number: *
Make: *
Model: *

* See attached FAA Approved Model List (AML) No. SR02507NY for the list of approved aircraft models and applicable airworthiness regulations

Description of Type Design Change:
Installation of a 600 pound capacity Goodrich AC rescue hoist system P/N 44311-10-2 in accordance with Carson Helicopters Inc. AC Rescue Hoist Drawing List CS61-001-005 Revision D dated January 22, 2008 and installation Instructions CS61-001-001 Revision IR dated January 15, 2008.

Limitations and Conditions:
1. This approval is limited to the model helicopters listed in AML No. SR02507NY with the following aircraft configuration:
   a. CT58-140-1 or -2 engines
   b. Main Gearbox P/N S6135-20600-039 and subsequent
   c. Ribbed pocket tail rotor blades P/N S6117-30101-043 and subsequent
   d. Bifilar assembly P/N S6112-23039-017 or -018
   e. Beam Pitch Control Tail Gear Box P/N S6135-66705-1 and subsequent
   f. Fixed Land Main Gear or Sponson Landing Gear
   g. STC SR1585NY installed – Composite Main Rotor Blades P/N 163-101-1
2. This modification is to be maintained in accordance with Carson Helicopters Inc. Instructions for Continued Airworthiness CS61-001-007 Rev. IR dated October 25, 2007 and accepted by the Fort Worth Aircraft Evaluation Group on January 7, 2008.
3. See AML No. SR02507NY for Rotorcraft Flight Manual Supplements required with this installation.

(See Continuation Sheet 2)

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: October 26, 2007
Date reissued:

Date of issuance: February 07, 2008
Date amended:

FEDERAL AVIATION ADMINISTRATION

By direction of the Administrator

[redacted]
(Signature)

Anthony Socias
Manager
New York Aircraft Certification Office

(Title)

United States of America

Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number **SR02507NY**

Date of Issuance: February 07, 2008

Limitations and Condition (Continued):

4. The installer must determine whether this design change is compatible with previously approved modifications.
5. If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

---END---

INSTRUCTIONS: The transfer endorsement below may be used to notify the appropriate FAA Regional Office of the transfer of the Supplemental Type Certificate.

The FAA will reissue the certificate in the name of the transferee and forward it to him.

TRANSFER ENDORSEMENT

Transfer the ownership of Supplemental Type Certificate Number _____

to (*Name of transferee*) _____

(*Address of transferee*) _____
(*Number and street*)

_____
(*City, State, and ZIP code*)

from (*Name of grantor*)(*Print or type*): _____

(*Address of grantor*): _____
(*Number & street*)

_____
(*City, State, and ZIP code*)

Extent of Authority (if licensing agreement): _____

_____

_____

_____

Date of Transfer: _____

Signature of grantor (*In ink*): _____

FAA APPROVED MODE .ST (AML) NO. SR02507NY
CARSON HELICOPTERS INC.
FOR
INSTALLATION OF A 600 POUND CAPACITY GOODRICH AC RESCUE HOIST SYSTEM P/N 44311-10-2

Original Issue Date: February 07, 2008

PART	REGULATION	MAKE	MODEL	TCDS	ROTORCRAFT FLIGHT MANUAL SUPPLEMENT	AML AMENDMENT DATE
21.25(a)(2)	Federal Aviation	Sikorsky Aircraft	S-61A	H2EA	RFMS No. 9 FAA Approved February 7, 2008	N/A
7	Civil Air	Sikorsky Aircraft	S-61L, S-61N	1H15	RFMS No. 8 FAA Approved February 7, 2008	N/A
7	Civil Air	Sikorsky Aircraft	S-61N (Short Fuselage - STC SH640NE)	1H15	RFMS No. 9 FAA Approved February 7, 2008	N/A

FAA Approved: [redacted]
Anthony Socias
Manager,
New York Aircraft Certification Office

Carson Helicopters, Inc.
Perkasie, PA 18944

FAA APPROVED
ROTORCRAFT FLIGHT MANUAL
SUPPLEMENT NO. 8
For

Sikorsky Model S61L and N HELICOPTERS EQUIPPED WITH A GOODRICH RESCUE HOIST SYSTEM.

This supplement must be attached to the Sikorsky S61L and N Rotorcraft Flight Manual SA 4045-100 (S61L), and SA 4045-82 (S61N) when the Goodrich Rescue Hoist System 44311-10 is installed in accordance with STC SR02507NY. This Supplement is applicable to S61L and N model aircraft modified by STC SR1585NY, (Composite Main Rotor Blades). The information contained herein supplements the information of the basic RFM. For limitations, procedures, and performance information not contained in this supplement, consult the basic RFM.

FAA Approved By:

[redacted]
for Anthony Socias
Manager, New York ACO

Date of Approval:
FEB - 7 2008

Revision IR

Carson Helicopters, Inc.
Perkasie, PA 18944
RFMS No. 8

Log of Revisions

Revision Number	Pages Affected	Description	FAA Approved	Date
IR	All	Initial Release	[redacted] for Anthony Socias Manager, NYACO	FEB - 7 2008

FAA APPROVED
DATE: FEB - 7 2008

SECTION I

LIMITATIONS:

Class B external loads: Category A or B operations

Class D external loads: Category A operations only

Minimum crew: 2 pilots and a hoist operator

Maximum Hoist load: 600 pounds

Maximum Gross Weight:
Class D Operations: See Figures 1, 2, 5 and 6 or 7 in the Performance Section.
Class B Operations. See Figures 3, 4, 5 and 6 or 7 in the Performance Section.

Maximum airspeed with a load on the hoist or the hoist cable extended: 65 KIAS

Maximum rate of climb or descent with a load on the hoist or the hoist cable extended: 1000 fpm.

A manual cable cutter must be easily accessible to the hoist operator.

Aircraft Configuration:

1. CT58-140-1 or -2 engines
2. Main Gear Box P/N S6135-20600-039 and subsequent
3. Ribbed pocket tail rotor blades.
4. Bifilar assembly P/N S6112-23039-017 or -018
5. Beam Pitch Control Tail Gear Box P/N S6135-66705-1 and Subsequent
6. Fixed Land Main Gear or Sponson Landing Gear
7. STC SR1585NY (Composite Main Rotor Blades P/N163-101-1)
8. S61 Long fuselage configuration.

PLACARDS

(Except as otherwise noted, placards must be placed in the pilots compartment in clear view of the pilot.)

1. Goodrich Hoist approved for Class B and D loads. (Located on the instrument Panel.)
2. Hoist Maximum Load: 600 pounds. (Located adjacent to cabin hoist control panel.)

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SECTION II

NORMAL PROCEDURES

EXTERIOR CHECK

1. External Hoist - Check mount for security, electrical cables secure and no fluid leaks

INTERIOR CHECK

1. Hoist operator's panel - Connections secure
   Cable cut switch cover closed
   Pendant connected and secure
2. Safety harness - available
3. Cable cutter - available and secure
4. Rescue devices - serviceable and secure
5. Cabin - secure loose items
6. Hoist AC Power circuit breaker (bottom of control closet) - IN

COCKPIT CHECK

1. Overhead circuit breaker panel - Hoist Control and Hoist Shear circuit Breakers - IN
2. Overhead panel - Hoist Switch - OFF
3. Overhead panel - Cable Hoist shear switch cover safety wired closed.

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PRE-TAXI

NOTE

The cockpit Hoist Switch controls which stations have the ability to shear. The switch in the CREW or PILOT position does not limit which station can operate the hoist up or down. The hoist is active in either CREW or PILOT position and will be controllable from all stations (pendant, panel or pilot). The pilot hoist switch has priority, and will override the cabin switches.

Hoist System - Check

1. Pilot, copilot and hoist operator intercom - functional

2. Hoist Switch - Crew

3. Hoist operator - functionally check hoist operation from cabin control panel and with the pendant
   - test shear circuits in accordance with Goodrich Operator and Maintenance Manual, P/N 44311-10
   - Verify that pilot collective hoist switch overrides panel/pendant controls

4. Hoist Power Switch - Pilot

5. Pilot - functionally check hoist operation with collective hoist switch.

6. Hoist Switch - OFF

HOIST OPERATION

Prior to hoist operations, the pilot should make sure that the aircraft can hover at the expected ambient conditions at the anticipated hoist operation location, including the anticipated hoist load. A viable escape plan should be established in the event of an engine failure. Applicable operating rules may require that OEI HOGE power is available.

1. Check circuit breakers - IN

2. Hoist master switch - PILOT or CREW

CAUTION

The hoist operator must wear a safety harness and be tethered to a cabin anchor point and other crewmembers must be similarly secured or in a seat with seat belt fastened BEFORE opening the cabin door.

CAUTION

The hoist operator should wear heavy gloves to prevent injury from broken cable strands.

CAUTION

The hoist operator should control the hoist cable/load at all times to minimize cable contact with the helicopter. Aircraft acceleration with the hoist cable extended could cause cable contact with the aircraft side or landing gear. When practical, extension or retraction of the hoist cable/load should be restricted to a hover or as slow a speed as possible.

3. Open and lock cabin door

4. It is the hoist operator's responsibility to assure that hoist cable does not contact any portion of the aircraft. In situations where contact with airframe or other obstacle is observed, hoisting should be interrupted while the contact area on the cable is inspected. If any broken wires, unraveling, or kinks are observed, hoisting operations should be discontinued and the cable replaced.

WARNING

Reeling a kinked/damaged cable into the hoist may cause a hoist jam, rendering the hoist inoperative.

5. Hoist operator is responsible to maintain stability of the hoisted load by use of hoist controls, ICS calls to the pilot, and physical control of cable. For minor oscillations, stop reel-in, apply hand motion to cable in direction opposite to the oscillation. For significant oscillation, stop reel-in, start reel-out or call for pilot to lower aircraft and/or take corrective action.

WARNING

If not quickly stopped, the instability may become unmanageable. Reeling in an unstable load will only aggravate the motion

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6. All crew should observe for shock loads, jerks, or snaps that impart high loads on the cable. If observed, hoisting should be interrupted and cable inspection undertaken to verify integrity (no damage) before resuming operations. If damaged, replace cable before next mission.

CAUTION

Static electricity should be dissipated by a suitable means before ground personnel touch the hook/cable or before personnel lowered by hoist touch the ground.

7. Pilot's hoist switch, cabin hoist switch, or pendant hoist switch - DOWN/UP as required. The pendant is the preferred control since it has variable speed capability. When practical, extension or retraction of the hoist cable/load should be restricted to a hover or as slow a speed as possible.

8. Hoist load - recover and secure

CAUTION

Position recovered hoist loads aft of the forward door to avoid exceeding fwd. CG limits.

9. Cabin door - CLOSE

SECTION III

EMERGENCY PROCEDURES

EXTERNAL ELECTRIC HOIST

SYSTEM DESIGN FEATURES: (Cabin hoist control panel)

The CAUTION light is on when the cable is within the first or last 10 feet. The hoist will be automatically limited to a fixed slow speed for the last 10 feet.

A flashing OVERTEMP light indicates the motor and/or gearbox are hot. The hoist cycle can be completed and the hoist should be allowed to cool until the indicator stops flashing. Then resume hoist operation.

A steady OVERTEMP light indicates that the hoist is no longer operable because the thermal fuse has melted.

WARNING

Do not shear the hoist when personnel are on the hoist. Maneuver the aircraft clear of ground personnel prior to shearing the hoist cable.

ENGINE FAILURE DURING HOIST OPERATIONS

The procedure to follow when an engine fails is dependent upon many factors. Prior to establishing a hover, the pilot must establish an escape plan and determine when shearing the hoist is appropriate. When personnel are not on the hoist, shearing the hoist after engine failure is recommended. If personnel are on the hoist at engine failure, the pilot and hoist operator should either return the personnel to the surface and then shear the cable or execute a fly away maneuver after bringing the personnel up and into the cabin. The flight crew should determine OEI HOGE capability prior to conducting a hoist operation.

1. Hoist in and recover the load if practical using 2 ½ minute power.
2. Adjust collective to achieve 2 ½ minute power and a minimum of 100% Nr.
3. Climb and slowly achieve Vtoss
4. When clear of obstacles either retrieve load or shear cable.
5. Retract landing gear, if applicable, with positive climb rate.
6. Reduce power to 30 minute rating.
7. Land when practical.

If fly away maneuver is not possible:

1. Adjust collective as needed.
2. Maneuver away from personnel on the ground.
3. Hoist Shear Switch - SHEAR
4. Increase collective to cushion landing.

HOIST FAILS TO REEL IN/OUT

1. Check panel/pendant power ON light and all circuit breakers IN

2. Verify OVERTEMP light is not steady.

3. Attempt control of hoist from pendant, cabin control panel and/or pilot's hoist switch

4. Disconnect pendant and attempt operation from the cabin control panel or pilot's switch.

5. If unsuccessful, recover cable/load by hand, land and recover, or jettison cable at lowest safe altitude.

UNCOMMANDED HOIST OPERATION

1. Push the Emergency Stop Button on the cabin hoist control panel.

NOTE

After pushing Emergency Stop Button, push it again and wait for the self test feature to complete. Normal operation may then be possible.

2. Attempt to stop hoist operation with the pilot's switch (which overrides the cabin switches). In unsuccessful, turn cockpit Hoist Switch OFF

3. Disconnect pendant from cabin control panel, turn Hoist Switch ON and attempt control from the cabin hoist control panel or use of the pilot's hoist switch.

4. If unsuccessful, turn cockpit Hoist Switch OFF

5. If control not regained, recover cable/load by hand, land and recover, or jettison cable at lowest safe altitude.

HOIST CABLE/LOAD ENTANGLED IN GROUND OBSTRUCTION

1. Attempt to gain assistance from ground personnel.

2. Pilot or cabin hoist shear switch - Lift cover and place switch in SHEAR.

NOTE

The pilot's shear switch will cut the cable regardless of the position of the hoist switch. The cabin shear switch will cut the cable only when the hoist switch is placed in the CREW position.

GENERATOR OUT

1. The hoist will continue to operate, but at a slower rate of approximately 100 fpm.

SECTION IV

PERFORMANCE -

Figure 1. CT58-140-1 Engine 2 ½ Minute Power Available

Figure 2. CT58-140-2 Engine 2 ½ Minute Power Available

Figure 3. CT58-140-1 or -2 Engine Takeoff Power (5 Min. Twin, 30 Min OEI) 100% Nr

Figure 4. CT58-140-1 or -2 Engine Takeoff Power (5 Min. Twin, 30 Min OEI) 103% Nr

Figure 5. Indicated Torque vs. Engine Shaft Horsepower

Figure 6. Power Required to Hover Out of Ground Effect, 100% Nr

Figure 7. Power Required to Hover Out of Ground Effect, 103% Nr

Recommended Procedure For Over Specification Engines:

1. Top each engine and determine available torque. Use the lowest engine torque for Class D operations. For two engine operations, use the average of the two torques.

2. Using ambient pressure altitude and temperature, determine available engine torque for a minimum spec. engine from Figure 1, 2, 3 or 4 as appropriate. For Class D operations, use Figure 1 or 2, as appropriate. If topping torque is higher, it can be used.

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3. Use Figure 5 to determine available shaft horsepower for each engine.

4. Use Figure 6 or 7 to determine maximum weight to hover OGE. Enter at the bottom of the chart with available shaft horsepower. For two engine operations enter with the sum of the two engine shaft horsepowers. Go up vertically to intersect with the ambient wind. Follow the guide line to the base line. Go vertically to the ambient temperature. Follow the guide line to the base line. Go vertically to the ambient pressure altitude. Interpolate to determine the gross weight to hover OGE.

CARSON HELICOPTERS, INC.
PERKASIE, PA 18944
RFMS #8
S61L,N

POWER AVAILABLE
2 1/2 MINUTE POWER
CT58-140-1 ENGINE
100% NR
SPECIFICATION POWER

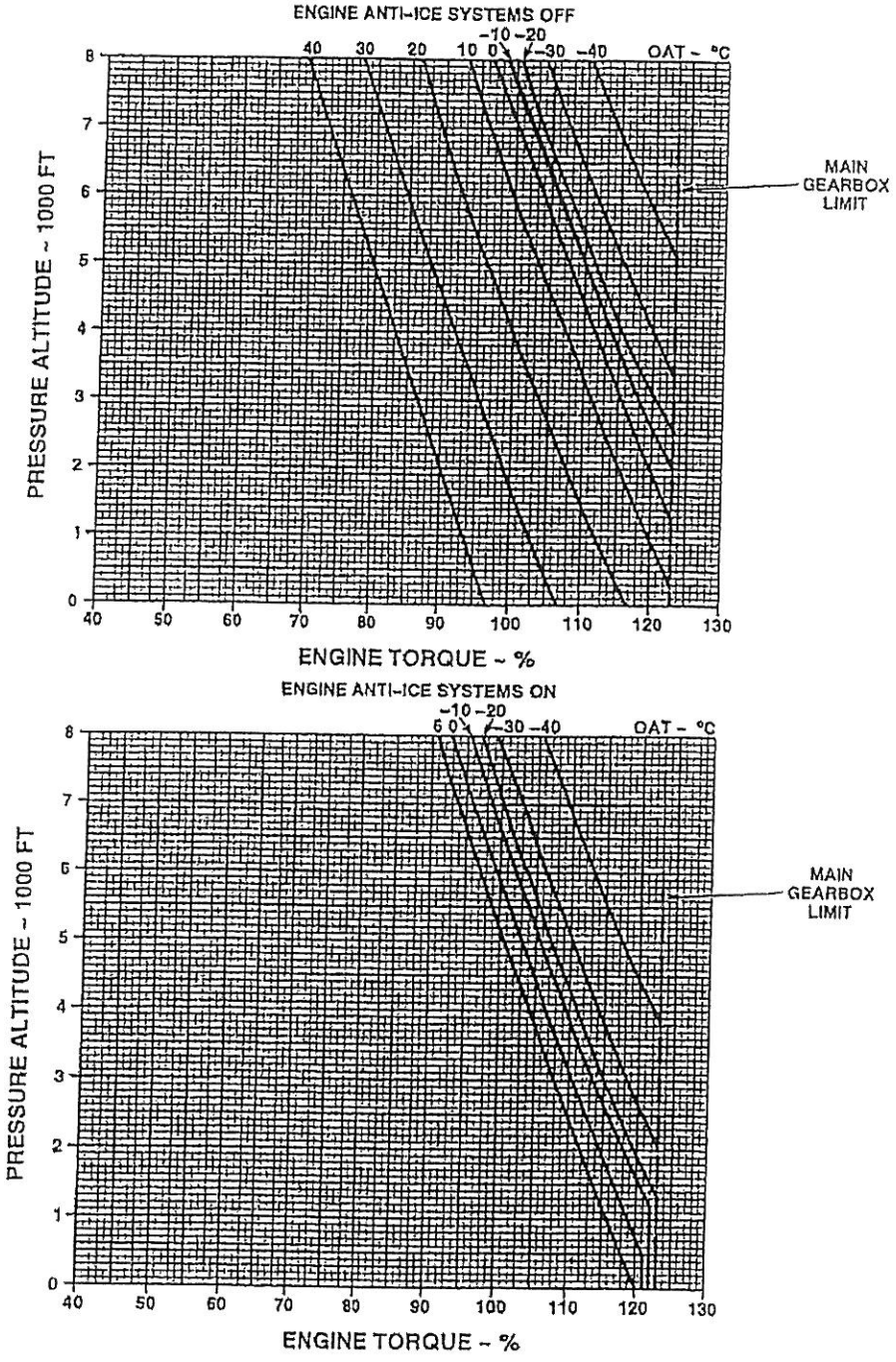

FIGURE 1

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CARSON HELICOPTERS, INC.
PERKASIE, PA 18944
RFMS #8
S61L,N

POWER AVAILABLE
2 1/2 MINUTE POWER
CT58-140-2 POWER
100% NR
SPECIFICATION POWER

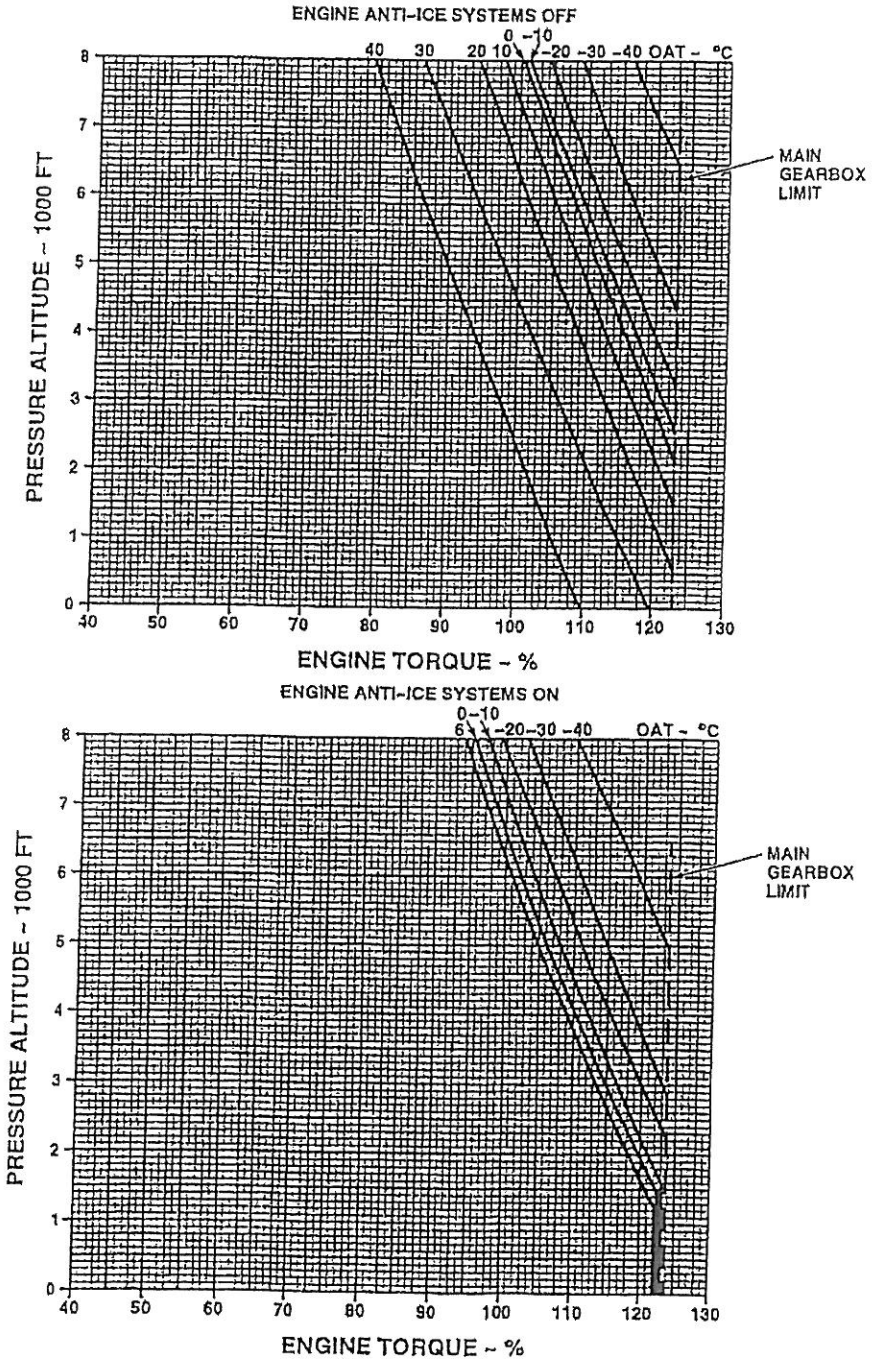

FIGURE 2

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CARSON HELICOPTERS, INC.
PERKASIE, PA 18944
RFMS #8
S61L,N

POWER AVAILABLE
TAKEOFF POWER (5 MIN TWIN, 30 MIN OEI)
CT58-140-1, -2 ENGINE(S)
100% NR
SPECIFICATION POWER

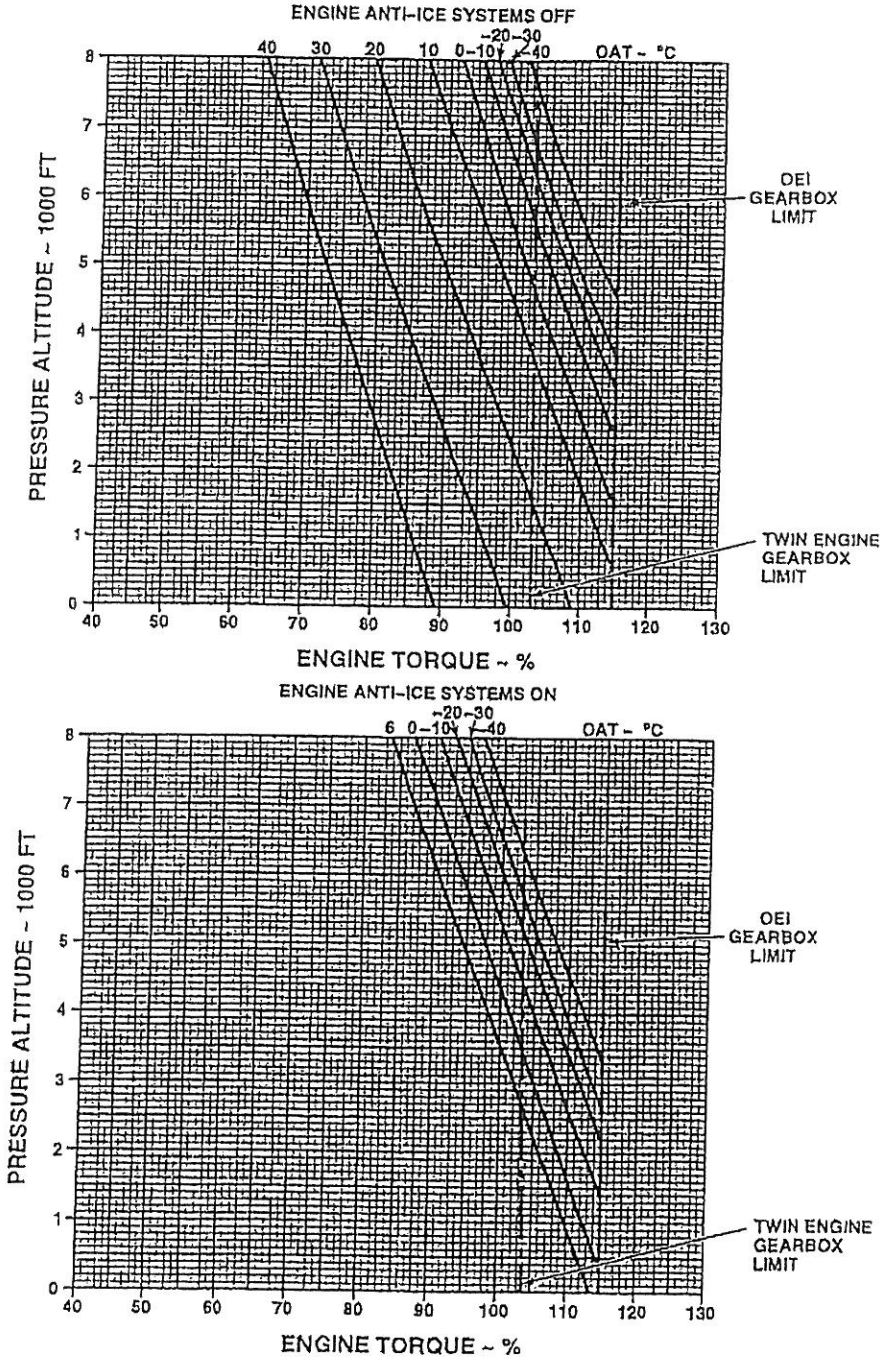

FIGURE 3

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CARSON HELICOPTERS, INC.
PERKASIE, PA 18944
RFMS #8
S61L,N

POWER AVAILABLE
TAKEOFF POWER (5 MIN TWIN, 30 MIN OEI)
CT58-140-1, -2 ENGINE(S)
103% NR
SPECIFICATION POWER

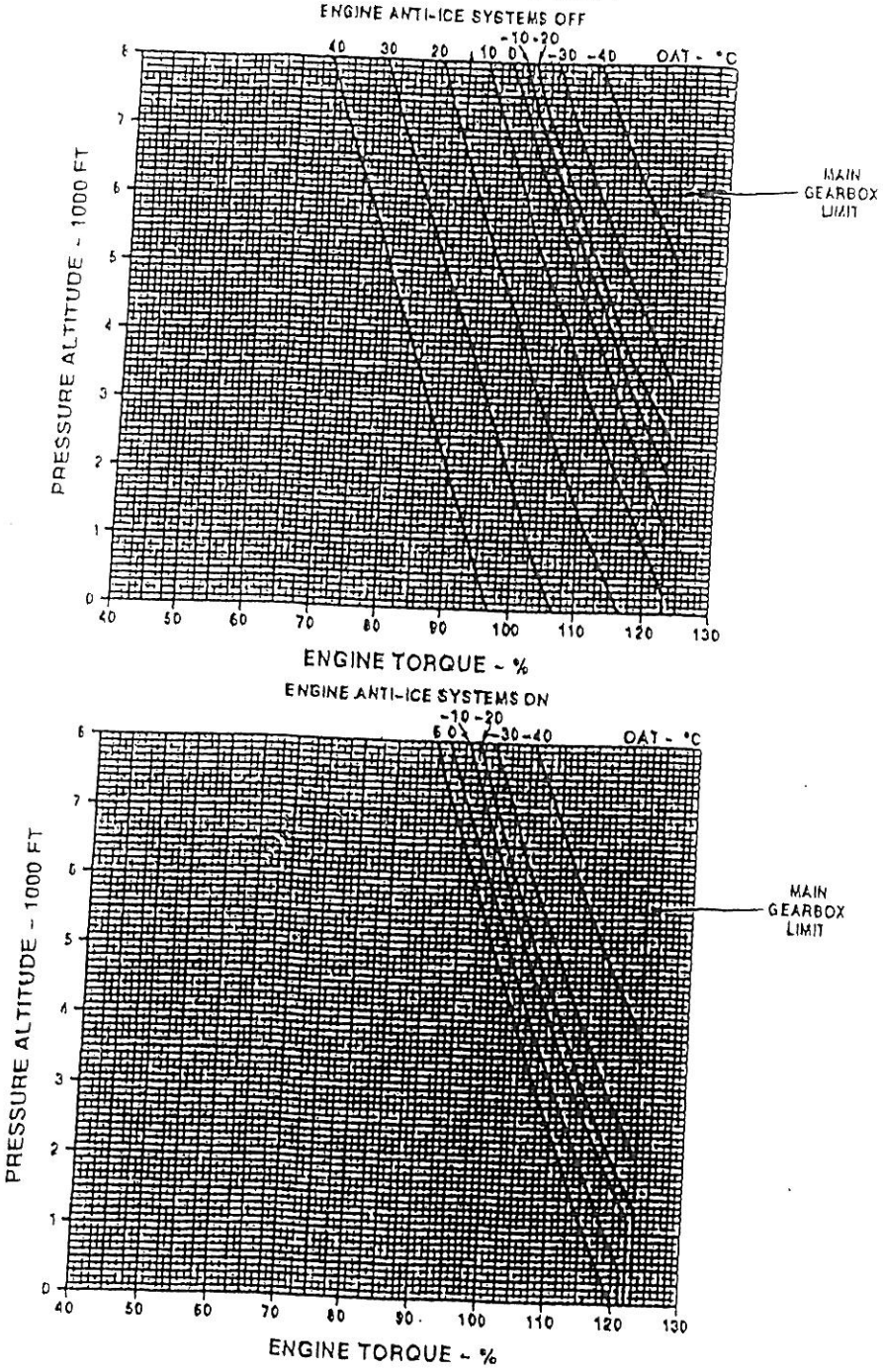

FIGURE 4

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CARSON HELICOPTERS, INC.
PERKASIE, PA 18944
RFMS #8
S61L,N

INDICATED TORQUE VS ENGINE SHAFT HORSEPOWER

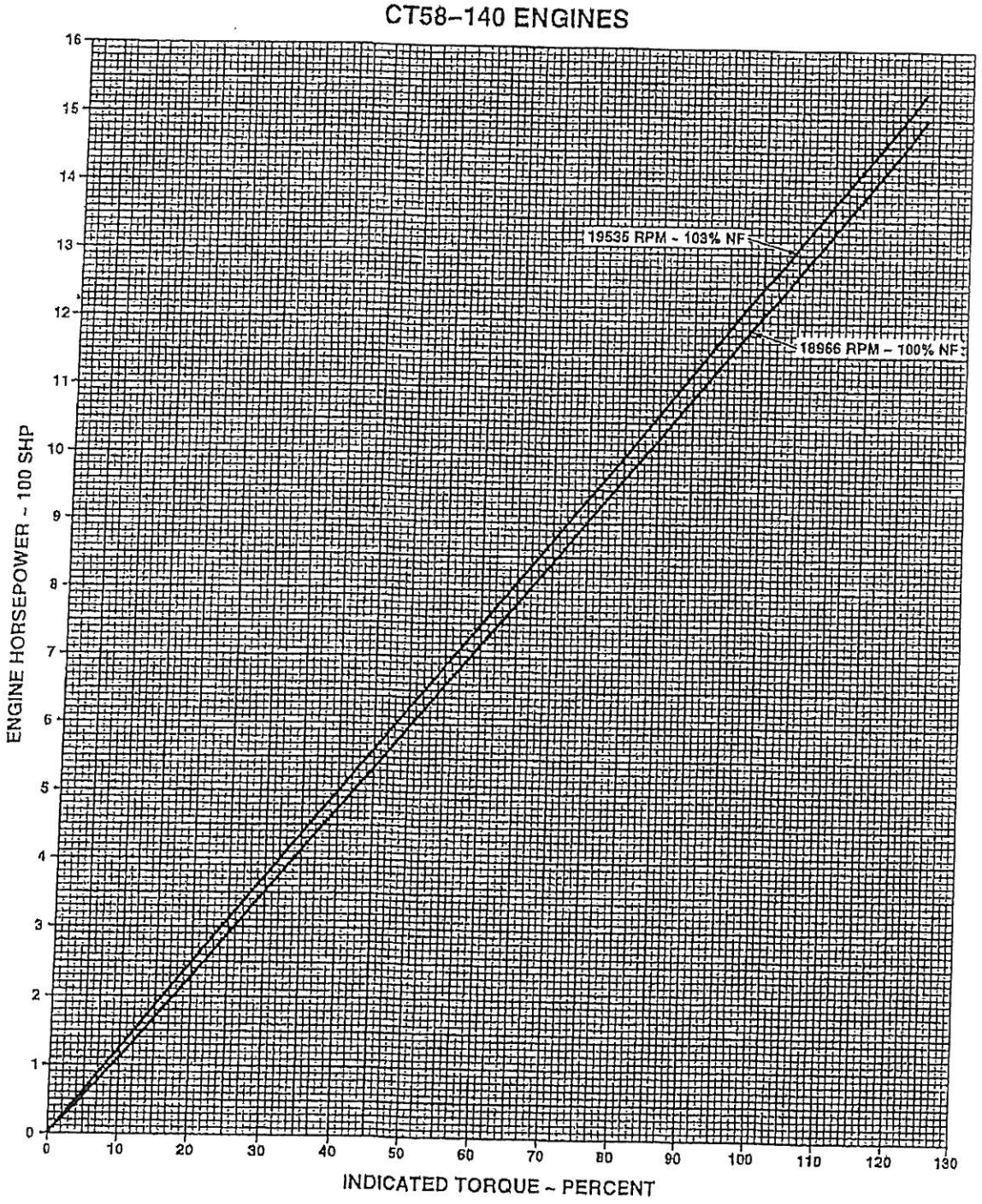

FIGURE 5
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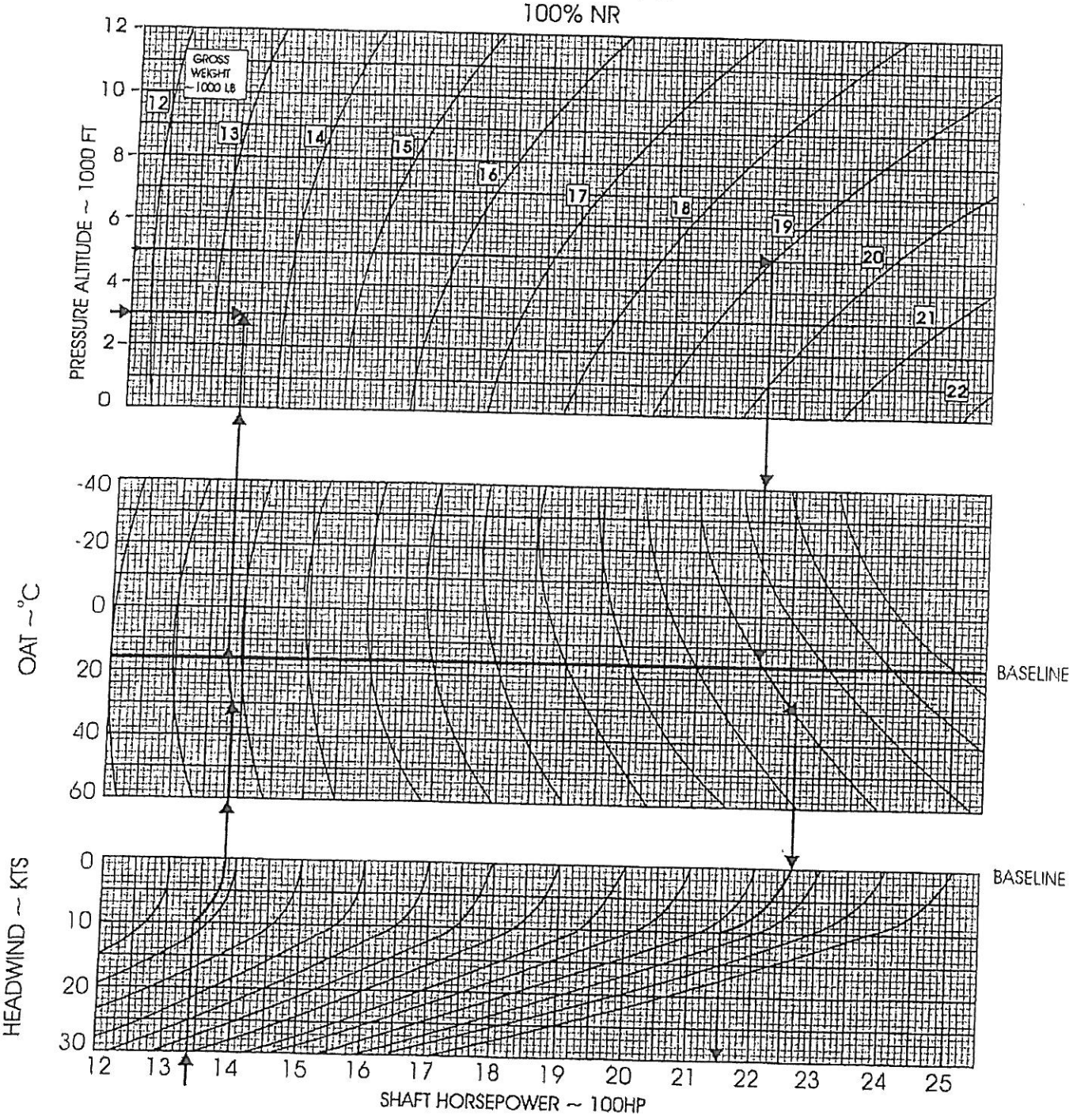
CARSON HELICOPTERS, INC.
PERKASIE, PA 18944
RFMS #8
S61L,N

NO ICE SHIELD
SOURCE:
FLT TEST

POWER REQUIRED TO HOVER OUT OF GROUND EFFECT

COMPOSITE BLADES
100% NR

10 KVA GENERATOR LOAD
CT58-140-1-2



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POWER REQUIRED TO
HOVER OGE, 100% NR

FIGURE 6

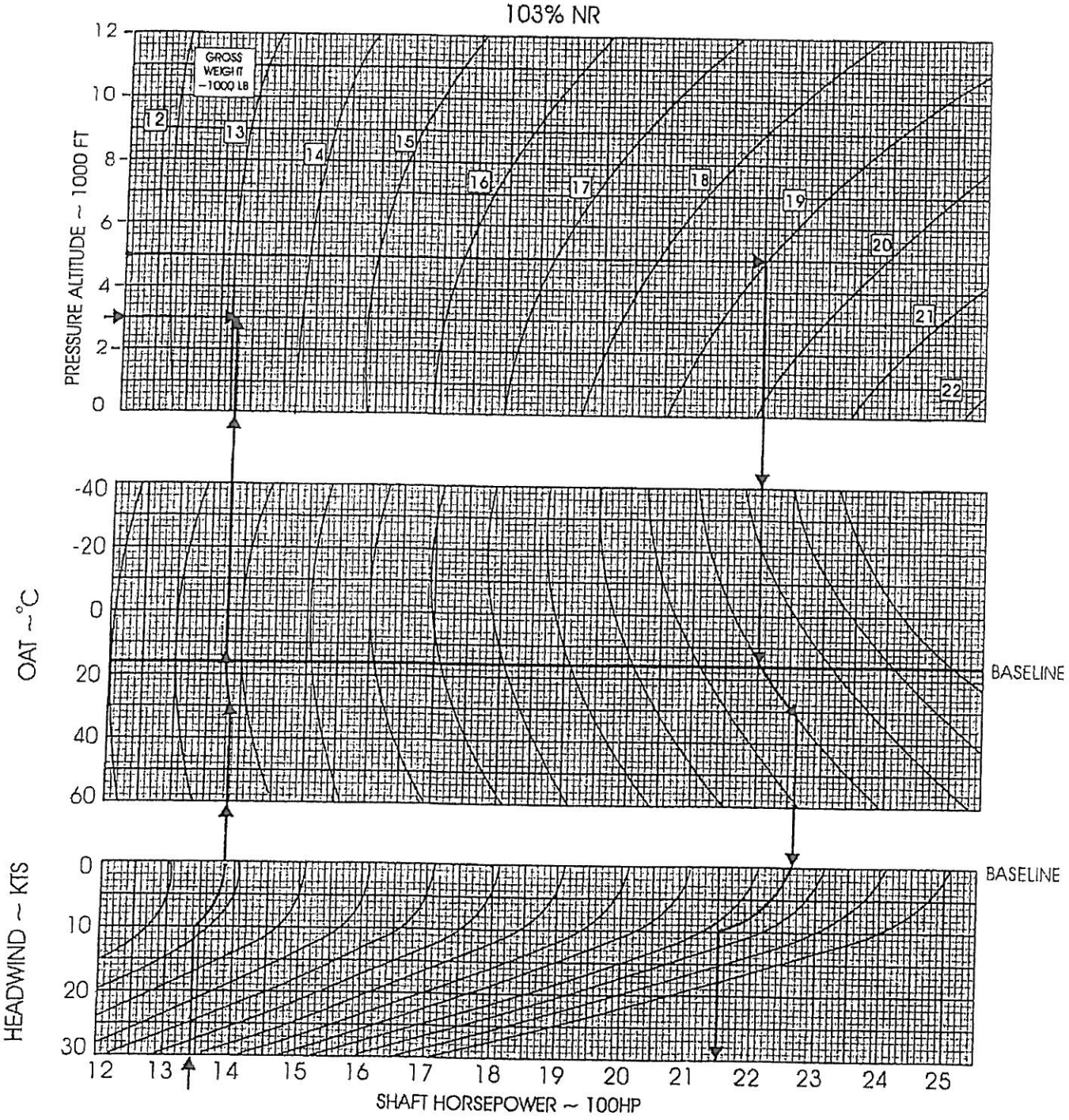
CARSON HELICOPTERS, INC.
PERKASIE, PA 18944
RFMS #8
S61L,N

NO ICE SHIELD
SOURCE:
FLT TEST

POWER REQUIRED TO HOVER OUT OF GROUND EFFECT

COMPOSITE BLADES
103% NR

10 KVA GENERATOR LOAD
CT58-140-1-2



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POWER REQUIRED TO
HOVER OGE, 103% NR

FIGURE 7

Carson Helicopters Inc
Perkasie, PA 18944
RFMS 8

PART 2 (NON FAA APPROVED)

WEIGHT AND BALANCE

ITEM	WEIGHT (lbs)	LONG.ARM (inches)	LATERAL ARM (inches)
External Truss Mount	17	154	43
Hoist Assembly	98	154	57
Control Panel	5	182	35
Pendant	5	187.5	37
Hoist Load	Variable	154	57
Cable Cutter Tool	3	126.5	35
Operator's Harness	7	168.5	18.5

Hoist Caution Zones and Cable Speed Characteristic

Hook Assy. Position	Hoist Control	Characteristic
Hook in stowed position.	Control Pendant Assembly	1. Caution Indicator illuminated.
Hook within 18 to 24 in. of hoist.	Control Pendant Assembly Operator Panel Pilot Control	1. Caution indicator ON. 2. Cable speed (Variable) 0 to 35 fpm. 3. Control cable speed (Not variable) directly to 35 fpm. 4. Pilot control cable speed (Not variable) directly to 35 fpm.
Hook within 24 In. to 10.5 ft. from hoist.	Control Pendant Assembly Operator Panel Pilot Control Pilot control	1. Caution indicator ON 2. Cable speed (Variable) 0 to 75 fpm. 3. Controls cable speed (Not Variable) directly to 75 fpm. 4. Pilot controls cable speed (Not Variable) directly to 75 fpm.
Hook is beyond 10.5 feet from hoist	Control Pendant Assembly Operator Panel Pilot Control	1. Caution indicator OFF. 2. Cable speed (variable) 0 to 325 fpm. 3. Controls cable speed (Not Variable) directly to 325 fpm. 4. Pilot controls cable speed (Not variable) directly to 100 fpm.
Hook assembly is extended until 7 to 7.5 wraps of cable remains on cable storage drum.	Control Pendant Assembly Pilot Control Control Pendant Assembly	1. Caution indicator ON. 2. Controls cable speed decelerates (not variable) directly to 75 fpm. 3. Caution indicator on control pendant ON. 4. Cable speed (variable) 0-75 fpm.
Hook assembly is extended until 4 to 4.5 wraps of cable remains on cable storage drum.	All controls	1. Hoist operation stopped for down direction. 2. Caution indicator ON.
Hook assembly is extended until 3 to 3.5 wraps of cable remains on cable storage drum.	All controls	1. Hoist operation stopped for down direction. NOTE: S1 &S2 are fail safe switches and will activate only if the override switch S11 is actuated or Switch S3 & S4 fail.

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CARSON HELICOPTERS INC.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

600 LB RESCUE HOIST
P/N 44311-10-2

ON SIKORSKY MODEL S-61 HELICOPTER

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RECORD OF REVISIONS

REVISION NUMBER	ISSUE DATE	DATE INSERTED	BY
Original	10-25-07		V. Shami

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LIST OF EFFECTIVE PAGES

TITLE	PAGES	REVISIONS
COVER	i, ii BLANK	0
RECORD OF REVISIONS	iii, iv BLANK	0
LIST OF EFFECTIVE PAGES	v	0
TABLE OF CONTENTS	vi	0
CHAPTER 1 INTRODUCTION	1, 2, 3	0
CHAPTER 4 AIRWORTHINESS LIMITATIONS	4	0
CHAPTER 5 INSPECTION REQUIREMENTS AND OVERHAUL SCHEDULE	5, 6	0
CHAPTER 25 EQUIPMENT REMOVAL AND INSTALLATION	7, 8, 9, 10, 11, 12	0

TABLE OF CONTENTS

CHAPTER 1
INTRODUCTION

This instruction for continued airworthiness is prepared in accordance with Appendix A to FAR Part 29 paragraph 29.1529. A copy of this ICA will be provided with each Carson Helicopters Incorporated (CHI), 600 LB Goodrich rescue hoist installation. Additional copies of this ICA may be purchased from:

Carson Helicopters Inc.
Hoist STC Project Manager
952 Blooming Glen Road
Perkasie, PA 18944

Phone: (215) 249-3535
Fax: (215) 249-0978

CHI will maintain a record of each hoist installation. Changes to this ICA will be distributed by CHI to each installer on record.

1. APPLICABILITY. This ICA is applicable to Sikorsky Models S-61A, S-61L, and S-61N (Standard length and shortened body) helicopters when the CHI rescue hoist is installed.

2. SUPERSEDED DOCUMENTS. The information, procedures, requirements, and limitations contained in this document for this type design change supersede the information, procedures, requirements and limitations contained in the rotorcraft's maintenance manual when the type design change is installed on the Type Certificate holder's rotorcraft.

3. DESCRIPTION. The electrically (ac) operated rescue hoist, which has a rated capacity of 600 pounds, is mounted outside the helicopter above the right hand forward door on models S-61 L and N and above the right hand aft door on the S-61A and the shortened S-61N. The supporting structure for the hoist is composed of aluminum alloy tubes, fittings, and pads. Four mounting socket pads (fittings), made from aluminum alloy, are attached to the fuselage roof above the door. Quick disconnect electrical canon plugs are also attached to allow for complete installation and removal of the hoist when required.

The hoist is installed according to CHI Drawing CS61-105-001 and CS61-001-001 installation instructions, and is supported by CS61-105-200 mount that attaches to the Sikorsky support assembly. The Sikorsky support assembly is comprised of tubes and end fittings and is mounted to the aircraft roof at 4 support points. The Sikorsky support assemblies are different for the forward door hoists than the aft door mounting..

4. LIST OF APPLICABLE PUBLICATIONS. The publications listed herein constitute the required information essential for continued airworthiness for the rotorcraft.

DOCUMENT NO.	TITLE
SA 4045-31E	SIKORSKY AIRCRAFT S-61L/N STRUCTURAL REPAIR MANUAL
SA 4045-79	SIKORSKY AIRCRAFT S-61N ILLUSTRATED PARTS CATALOG
25-00-19	GOODRICH CORPORATION OPERATION AND MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST. EXTERNAL MOUNTED RESCUE HOIST PNs 44311-10-1, 44311-10-2

NOTE: The rescue hoist maintenance manual 25-00-19 listed above forms a part of the continued airworthiness of the rotorcraft when the CHI/Goodrich 600 lb rescue hoist is installed. This manual is included with each rescue hoist delivery in addition to this ICA. Additional copies may be purchased from Carson helicopters.

5. ARRANGEMENT. This manual is arranged using the ATA-100 numbering system and the format and content of FAA Instructions for Continued Airworthiness Template.

6. ABBREVIATIONS.

FAA/AUTHORITY = Federal Aviation Administration or another airworthiness authority.

FAR = Federal Aviation Regulation
ICA = Instructions for Continued Airworthiness
FS or STA= Fuselage station
BL = Butt line
WL = Water line
CHI = Carson Helicopters Incorporated

CHAPTER 4
AIRWORTHINESS LIMITATIONS

NO AIRWORTHINESS LIMITATIONS ASSOCIATED WITH THIS TYPE DESIGN CHANGE.

CHAPTER 5
INSPECTION REQUIREMENTS AND OVERHAUL SCHEDULE

1. INTRODUCTION.

Inspection of hoist support structure includes all components that are not part of the hoist assembly. For inspection and maintenance of the hoist assembly refer to Goodrich maintenance manual 25-00-19.

There are no mandatory inspections for the support structure. Conditional inspections are to be performed prior to next flight after an exposure to lightning strike, hail, abnormal vibration, hard landing, and when the hoist support structure is struck by a foreign object. Inspect all structure when the hoist is installed after a period of storage.

2. CONDITIONAL INSPECTION

a. INSPECTION OF HOIST CAGE

CAUTION: Do not attempt to straighten tubes bent in excess of **1/240** of the length of the tubes. Tubes must be replaced if damaged.
CAUTION: Do not use any welding procedures to repair any damage to the aluminum supports.

1. Inspect tubes and fittings for dents, cracks and abrasions.
   Smooth dents, not exceeding **1/20** of the tube diameter in depth, need not be repaired, if the dents are free from cracks, abrasions, or sharp corners. Bowed tubes are considered as negligible damage, if the maximum bow does not exceed **1/240** of the length of the tube.

2. Repair as follows:

   Damage exceeding that described in the following steps necessitates replacement of the parts or of the entire cage support assembly.

3. Smooth out nicks and scratches not exceeding **0.010** inch in depth in the aluminum alloy tubular supports. Smooth out nicks and scratches not exceeding **0.005** inch in depth in the fittings of the support assembly.
4. Inspect tube to fitting fasteners. Looseness of tubes due to elongation of rivet holes must be repaired, using **1/32** inch oversize rivets. Use HS **42P-6** pins and HS **15-6** collars (red in color), manufactured by Hi-Shear Rivet Tool Co., Los Angeles, CA.
5. Damage greater than negligible to the aluminum tubes of the support assembly necessitates replacement of the tubes.
6. Any damage greater than negligible to the fittings of the support assembly necessitates replacement of the fittings.

b. INSPECTION OF BACKUP STRUCTURE

The backup structure, identified as Item 18 on the Installation and removal section, is all basic aluminum structure and is inspected and maintained in accordance with the basic Sikorsky S-61 helicopter Structural Repair Manual.

3. HOIST ASSEMBLY MANDATORY INSPECTION

For mandatory and other inspections and overhaul requirements of the hoist assembly refer to the 25-00-19 Goodrich hoist maintenance manual.

CHAPTER 25
EQUIPMENT REMOVAL AND INSTALLATION

1. DESCRIPTION

The Goodrich rescue hoist, Part number 44311-10-2 is mounted above the side door on the right hand side of the helicopter. The hoist receives power from the helicopter ac generators. The hoist incorporates a 250 ft cable which is lowered and raised during rescue operations. The helicopter main pilot has the control to operate the hoist or to allow the crew to operate the hoist by selecting "Pilot, Off, or Crew" on the master switch located in the pilot's overhead panel. The pilot can cut the cable in an emergency by operating the shear switch or may allow the crew to operate the shear switch. Operations by the crew are accomplished thru an operator's panel and a control pendant located near the side door where the hoist is mounted. A secondary hand held cable cutter is located near the operator's panel and may be used in an emergency when the primary cable cutter (shear switch) fails to operate. The pilot's up down hoist control switch is located on the bottom side of the collective stick grip. Limit switches built in the hoist assembly prevent motion of the cable when it is fully extended or retracted. The hoist assembly internal operations, overhaul, and repair limits are contained in the Goodrich maintenance manual number 25-00-19.

A searchlight mounted on the hoist support structure may be manually operated by the crew. The searchlight power switch is also located on the control panel.

The crewman's safety harness may be attached to any tie down fitting on the cargo floor or to the ring on the safety tube for models S-61A and Shortened N. Two tie down fittings are installed above the door for the S-61L and N for this purpose. The harness shall he worn during hoist operations and/or any time the cargo door is opened in flight.

2. INSTALLATION

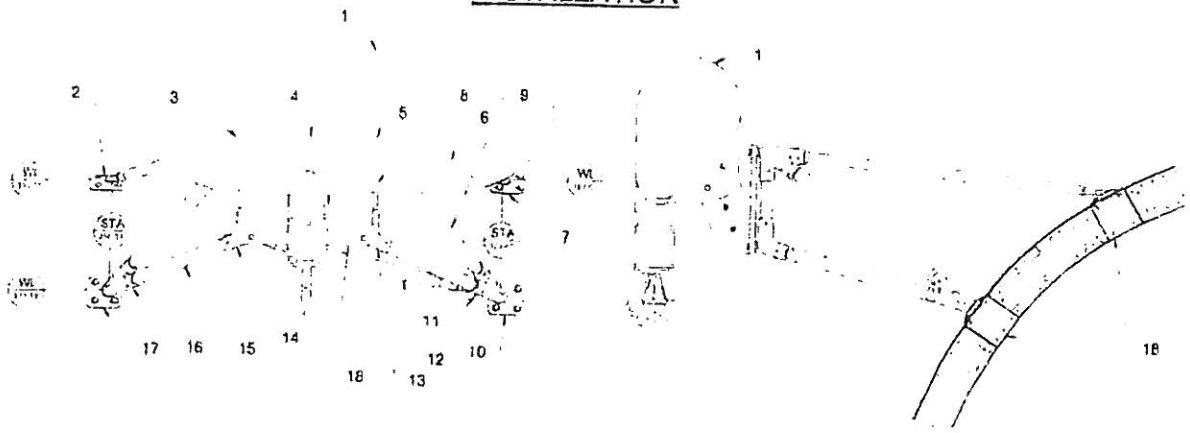
The hoist is installed at four aluminum Socket pads (mounting fittings). After installation for the first time, these socket pads are to remain installed permanently on the helicopter at the locations shown below.

Models S-61A & shortened S-61N		Models S-61L & S-61N	
Station (FS)	Water Line	Station (FS)	Water Line
323.69	171	148.5	177.45
323.69	181	N/A	N/A
356.31	171	176.5	174.75
356.31	181	176.5	183.55

The hoist, hoist adapter plate, and support cage can all be removed when not in use. The electrical current to the hoist is provided thru wire harnesses routed to the helicopter roof and terminates outside the helicopter to cannon plugs near the hoist structure. The wire routing to the cannon plugs will also remain permanently attached and need not be removed when the hoist assembly is removed.

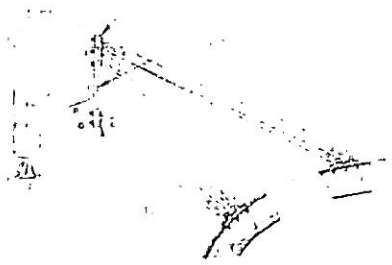
The initial installation of the hoist structure and electrical provisions will be accomplished using the installation instructions provided with each hoist installation kit. The following figure illustrates the hoist components and may be used for removal, storage, and re-installation of the hoist together with instructions outlined shown below.

PARTS LIST FOR THE S-61A AND S-61N (SHORT) INSTALLATION



INDEX	NOMENCLATURE GOODRICH	GAGE	MATERIAL	COMPOSITION
1	HOIST	N/A	VARIES	P/N 44311-10-2
2	SOCKET PAD	FORGING	AL ALLOY	2024-T3
3	FITTING	FORGING	AL ALLOY	2024-T3
4	SOCKET TUBE	1 X 0.049	AL ALLOY	2024-T3
5	FITTING	FORGING	AL ALLOY	2024-T3
6	TUBE SUPPORT	7/8 X 0.049	AL ALLOY	2024-T3
7	SOCKET PAD	FORGING	AL ALLOY	2024-T3
8	SOCKET TUBE	1 X 0.049	AL ALLOY	2024-T3
9	SUPPORT TUBE	1-1/8 X 0.049	AL ALLOY	2024-T3
10	SOCKET PAD	FORGING	AL ALLOY	2024-T3
11	FITTING	FORGING	AL ALLOY	2024-T3
12	SUPPORT TUBE	1 X 0.049	AL ALLOY	2024-T3
13	FITTING	FORGING	AL ALLOY	2024-T3
14	FITTING	FORGING	AL ALLOY	2024-T3
15	SUPPORT TUBE	1-1/8 X 0.049	AL ALLOY	2024-T3
16	FITTING	FORGING	AL ALLOY	2024-T3
17	SOCKET PAD	FORGING	AL ALLOY	2024-T3
18	BACKUP STRUCTURE	VARIES	AL ALLOY	VARIES

PARTS LIST FOR THE S-61L AND S-61N INSTALLATION



INDEX	PART NUMBER	NOMENCLATURE
1	44311-10-2	GOODRICH HOIST
2	UAH-1165-11	MOUNTING ADAPTER
3	UAH-1165-15	MOUNTING ADAPTER
4	UAH-1165-13	MOUNTING ADAPTER
5	UAH-1157-9	TUBE ASSEMBLY
6	UAH-1157-7	TUBE ASSEMBLY
7	UAH-1157-13	TUBE ASSEMBLY
8	UAH-1157-3	TUBE ASSEMBLY
9	UAH-1157-11	TUBE ASSEMBLY
10	UAH-1157-5	TUBE ASSEMBLY
11	UAH-1164-7	MOUNTING ADAPTER
12	UAH-1166-9	MOUNTING ADAPTER
13	UAH-1160-1	MOUNTING PLATE
18	VARIES	ALUMINUM BACKUP STRUCTURE

1. Attach the hoist support cage, P/N S6150-62351 (S-61A and short N) and 61850-63014 (S-61L and N) at each fuselage socket pads with NAS bolts and MS washers provided with each installation. Use standard torque on bolts.

2. Connect electrical canon plug at the hoist mounting plate. Refer to the installation instructions.

3. Attach the CS61-105-200 mount to the hoist cage. Refer to the installation instructions for the correct dash number for each model.

   Note: The adapter plate may be installed to the hoist cage as an assembly, prior to installing hoist cage to the aircraft.

4. Attach the Goodrich 44311 hoist to the mount tube with two each, NAS6604-54 bolts, MS21042L4 nuts, and a pair of NAS620-416 washers.

5. Connect electrical canon plug from the Goodrich hoist to the connector on the hoist cage.

3. REMOVAL

1. Disconnect the electrical canon plug from the Goodrich hoist to the connector on the hoist cage and from the cage to the fuselage connector.

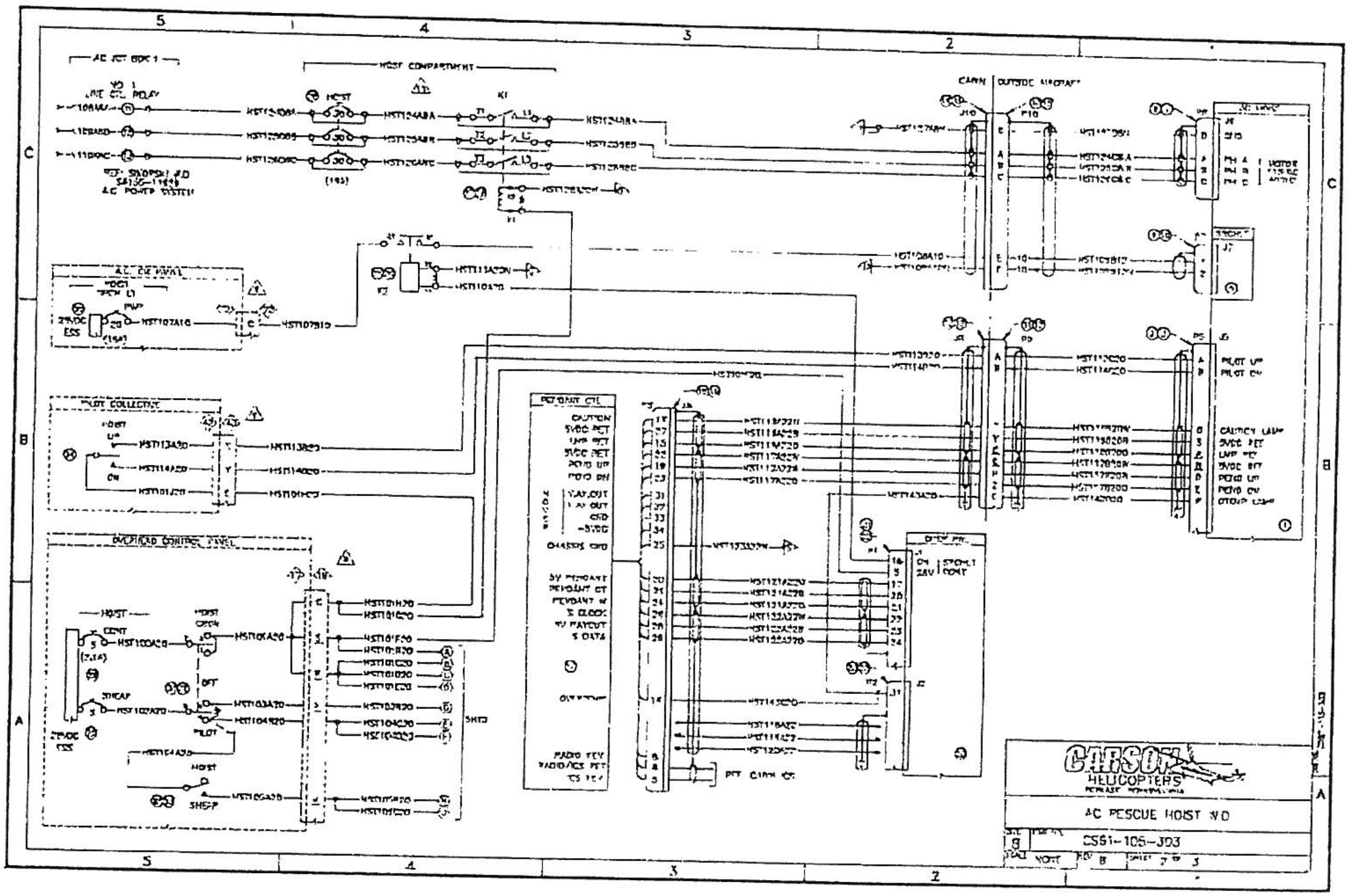
2. Remove the two bolts/nuts connecting the hoist to the mounting tube.

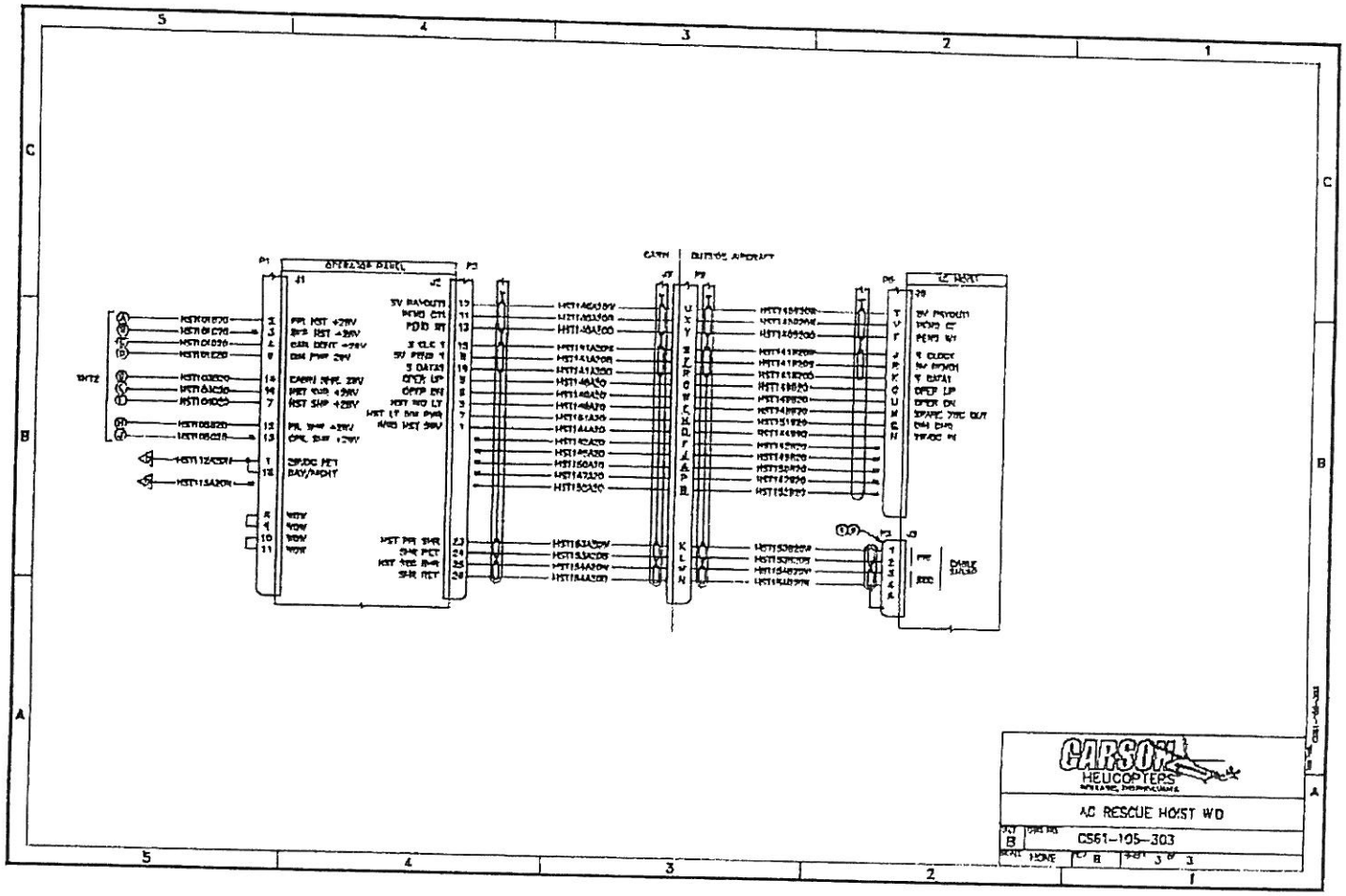
3. Carefully remove the Goodrich 42325 hoist from the mounting tube.

4. If desired, remove the CS61-105-200 mount from the hoist cage by removing the four attaching bolts/nuts.

5. With the hoist cage adequately supported, remove the mounting bolts attaching the cage to the fuselage. Carefully lower the cage from the fuselage.

4. WIRING DIAGRAM


HOIST COMPARTMENT
A.C. CB PANEL
PILOT COLLECTIVE
OVERHEAD CONTROL PANEL
PENDANT CTL
CABIN
OUTSIDE AIRCRAFT
CARSON HELICOPTERS
AC RESCUE HOIST W/D
CS61-105-303


CARSON
HELICOPTERS
AC RESCUE HOIST WD
CS61-105-303
SCALE NONE
SHT 3 OF 3