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Flight Standardization Board Report

Revision: Original
Date: 11/02/2021

Manufacturer
Sikorsky Aircraft Corporation
S-70M

Type Certificate Data Sheet (TCDS)	TCDS Identifier	Marketing Name	Pilot Type Rating
H5NE	S-70M	None	S-70M

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1. RECORD OF REVISIONS

Revision Number	Section(s)	Date
Original	All	11/02/2021

2. INTRODUCTION

Aircraft Evaluation Groups (AEG) are responsible for working with aircraft manufacturers and modifiers, during the development and Federal Aviation Administration (FAA) certification of new and modified aircraft to determine:

- 1) The pilot type rating,
- 2) Flightcrew member training, checking, and currency requirements, and
- 3) Operational suitability.

This report lists those determinations for use by:

- 1) FAA employees who approve training programs,
- 2) FAA employees and designees who certify airmen, and
- 3) Aircraft operators and training providers, to assist them in developing their flightcrew member training, checking, and currency.

3. HIGHLIGHTS OF CHANGE

This is the original Sikorsky Aircraft Corporation S-70M Flight Standardization Board Report (FSBR).

4. BACKGROUND

The Rotorcraft and Powered Lift AEG formed a Flight Standardization Board (FSB) that evaluated the Sikorsky Aircraft Corporation S-70M, as defined in FAA Type Certificate Data Sheet (TCDS) No. H5NE. The evaluation was conducted during October 2020 and April through May 2021, using the methods described in FAA Advisory Circular (AC) 120-53, Guidance for Conducting and Use of Flight Standardization Board Evaluations.

5. ACRONYMS

- 14 CFR Title 14 of the Code of Federal Regulations
- AC Advisory Circular
- ACFT Aircraft
- ACS Airman Certification Standards
- AEG Aircraft Evaluation Group
- AFCS Automatic Flight Control System
- AGL Above Ground Level
- ATP Airline Transport Pilot
- AV Audiovisual Presentation

- CPT Cockpit Procedures Trainer
- CRM Crew Resource Management
- DEC Digital Electronic Control
- ECU Electronic Control Unit
- EDECU Enhanced Digital Engine Control Unit
- EGI Embedded Global Positioning/Inertial Navigation
- EP Emergency Procedures
- ERM Emergency Response Method
- FAA Federal Aviation Administration
- FFS Full Flight Simulator
- FPS Flight Path Stabilization
- FMS Flight Management System
- FSB Flight Standardization Board
- FSBR Flight Standardization Board Report
- FSTD Flight Simulation Training Device
- FTD Flight Training Device
- HO Handout
- ICBI Interactive Computer-Based Instruction
- MAN Manual Control
- MDR Master Differences Requirements
- MFD Multifunction Display
- MFF Mixed Fleet Flying
- NAS National Airspace System
- NR Rotor Revolutions Per Minute
- OEI One-Engine-Inoperative
- PCL Power Control Lever
- PTS Practical Test Standards
- PTT Part Task Trainer
- RPMR Revolutions-Per-Minute Rotor
- SAS Stability Augmentation System
- SLEW Movement and Direction
- SU Stand-Up Instruction
- TC Type Certificate
- TCBI Tutorial Computer-Based Instruction
- TCDS Type Certificate Data Sheet

6. DEFINITIONS

These definitions are for the purpose of this report only.

6.1 Base Aircraft. An aircraft identified for use as a reference to compare differences with another aircraft.

6.2 Current. A crewmember meets all requirements to operate the aircraft under the applicable operating part.

- 6.3 Differences Tables.** Describe the differences between a pair of related aircraft, and the minimum levels operators must use to conduct differences training and checking of flightcrew members. Differences levels range from A to E.
- 6.4 Master Differences Requirements (MDR).** Specifies the minimum levels of training and checking required between a pair of related aircraft, derived from the highest level in the Differences Tables.
- 6.5 Mixed Fleet Flying (MFF).** The operation of a base aircraft and one or more related aircraft for which credit may be taken for training, checking, and currency events.
- 6.6 Operational Evaluation.** The AEG process to determine pilot type rating, minimum flightcrew member training, checking and currency requirements, and unique or special airman certification requirements (e.g., specific flight characteristics, no-flap landing).
- 6.7 Operational Suitability.** The AEG determination that an aircraft or system may be used in the National Airspace System (NAS) and meets the applicable operational regulations (e.g., Title 14 of the Code of Federal Regulations (14 CFR) parts 91, 121, 133, and 135).
- 6.8 Qualified.** A flightcrew member holds the appropriate airman certificate and ratings as required by the applicable operating part.
- 6.9 Related Aircraft.** Any two or more aircraft of the same make with either the same or different type certificates (TC) that have been demonstrated and determined by the Administrator to have commonality.
- 6.10 Seat-Dependent Tasks.** Maneuvers or procedures using controls that are accessible or operable from only one flightcrew member seat.
- 6.11 Special Emphasis Area.** A training requirement unique to the aircraft, based on a system, procedure, or maneuver, which requires additional highlighting during training. It may also require additional training time, specialized flight simulation training devices (FSTD), or training equipment.
- 6.12 Specific Flight Characteristic.** A maneuver or procedure with unique handling or performance characteristics that the FSB has determined must be checked.

7. PILOT TYPE RATING

- 7.1 Type Rating.** The S-70M type rating designation is S-70M.
- 7.2 Common Type Ratings.** Not applicable.
- 7.3 Military Equivalent Designations.** Military aircraft that qualify for the S-70M type rating can be found www.faa.gov under “Licenses & Certificates,” “Airmen Certification,” “Online Services,” “Aircraft Type Rating Designators.” This webpage is kept up-to-date and can be found at https://www.faa.gov/licenses_certificates/airmen_certification/.

8. RELATED AIRCRAFT

8.1 Related Aircraft on Same TCDS. The Sikorsky S-70M is related to the S-70A and it is a derivative of U.S. Army Model UH-60M.

8.2 Related Aircraft on Different TCDS.

- a) S-70 (H2NE) is a derivative of U.S. Army Models UH-60A and UH-60L,
- b) S-70C (H3NE) is a derivative of U.S. Army Models UH-60A and UH-60L,
- c) S-70C (M) (H4NE) is the civil equivalent of the U.S. Navy Model SH-60F, and
- d) S-70C (M1) (H4NE) is the civil equivalent of the U.S. Navy Model SH-60B.

9. PILOT TRAINING

9.1 Airman Experience. There are no additional airman experience requirements for the S-70M other than those already specified in 14 CFR part 61.

9.2 Special Emphasis Areas.

9.2.1 Pilots must receive special emphasis on the following areas during initial and recurrent ground training:

- a) Restricted Category Airworthiness Limitations.
- b) Preflight performance planning relating to takeoff performance with all-engines-operating (AEO), one-engine-inoperative (OEI), and go-arounds from rejected landings.
- c) Emergency procedures (EP) knowledge.

NOTE: Paragraph 13.1.1 contains additional information on alternate EP.

9.2.2 Pilots must receive special emphasis on, and perform the following areas during initial and recurrent flight training:

- a) Powerplant failure during takeoff, rejected takeoffs, and rejected landings.
- b) Stabilator malfunctions.
- c) Single-engine failures at altitude and in a hover.
- d) Electronic Control Unit (ECU)/Digital Electronic Control (DEC)/Enhanced Digital Engine Control Unit (EDECU) Lockout.
- e) Degraded Automatic Flight Control System (AFCS).

NOTE: Paragraph 13.1.1 contains additional information on alternate EP.

9.3 Specific Flight Characteristics. Maneuvers or procedures required to be checked as referenced in the Airline Transport Pilot (ATP) and Aircraft Type Rating Practical Test Standards (PTS) for Helicopter), as applicable. See paragraph 13.1.1 for additional EP information.

9.4 Seat-Dependent Tasks. There are no seat-dependent tasks.

9.5 Regulatory Training Requirements Which Are Not Applicable to the S-70M. None.

9.6 Flight Simulation Training Devices (FSTD). There are no specific systems, procedures, or maneuvers that are unique to the S-70M that require a specific FSTD for training.

9.7 Training Equipment. There are no specific systems or procedures that are unique to the S-70M that require specific training equipment.

9.8 Differences Training Between Related Aircraft. Not applicable.

10. PILOT CHECKING

10.1 Landing from a No-Flap or Nonstandard Flap Approach. Not applicable.

10.2 Specific Flight Characteristics. Maneuvers or procedures required to be checked as referenced in the ATP and Aircraft Type Rating PTS for Helicopter, as applicable.

NOTE: Paragraph 13.1.1 contains additional information on alternate EP.

10.3 Seat-Dependent Tasks. There are no seat-dependent tasks.

10.4 Other Checking Items. Not applicable.

10.5 Flight Simulation Training Devices (FSTD). There are no specific systems, procedures, or maneuvers that are unique to the S-70M that require a specific FSTD for checking.

10.6 Equipment. There are no specific systems or procedures that are unique to the S-70M that require specific equipment.

10.7 Differences Checking Between Related Aircraft. Not applicable.

11. PILOT CURRENCY

There are no additional currency requirements for the S-70M other than those already specified in part 61.

11.1 Differences Currency Between Related Aircraft. Not applicable.

12. OPERATIONAL SUITABILITY

The S-70M is operationally suitable for operations under part 91. The FSB determined operational compliance by conducting an evaluation of Aircraft Serial No. 704091 on May 10 and May 26, 2021. The list of operating rules evaluated is on file at the Rotorcraft and Powered Lift AEG.

13. MISCELLANEOUS

13.1 Safety Recommendations Procedures. The following procedures were used and validated during the FSB.

13.1.1 S-70M (H-60 series) alternate EP training. Recommended by the Sikorsky Aircraft Corporation and validated by the FSB.

13.1.2 Any EP training conducted in the aircraft will be briefed by the trainer prior to the flight and all EPs will be clearly stated as “simulated.” This supports the essential elements of crew coordination and the use of the Emergency Response Method (ERM).

13.2 Authorized Systems. EP training in the aircraft is limited to the following systems and restrictions. Only one system may be degraded or turned off at a time.

13.2.1 Stabilator Malfunctions. Stabilator malfunctions shall be limited to stabilator auto mode failures utilizing the Cyclic-Mounted Stabilator Slew-Up Switch only. Use of the Manual Control (MAN) Movement and Direction (SLEW) switch located on the Stabilator Control Panel will not be used to simulate stabilator malfunctions. Simultaneously activating the cyclic-mounted stabilator slew-up switch while pressing the Master Caution Press to Reset on the Master Warning Panel to disable the stabilator audio is prohibited. Simulated Stabilator Uncommanded Nose Down/Up Pitch Attitude change EP training will only be conducted in the simulator.

13.2.2 Single-Engine Failures at Altitude and Hover. Power Control Lever (PCL) manipulation will only be conducted between the FLY and IDLE detents during simulated engine failures in flight or hover. At no time will a functioning engine be shut off during flight or hover. At altitude, a hand shall be kept on the Engine PCL that has been retarded from the FLY detent to better ensure recovery if the opposite engine fails. The maximum altitude for simulated single-engine failure at a hover will not exceed 20 ft above ground level (AGL).

13.2.3 ECU/DEC/EDECU Lockout. ECU/DEC/EDECU lockout will only be conducted during training with one engine in lockout at a time. At no time will revolutions-per-minute rotor (RPMR)/rotor revolutions per minute (NR) be manually reduced below 100 percent while in flight or hover to simulate rotor droop.

13.2.4 Degraded AFCS. Degraded AFCS will be limited to manipulation of the AFCS only. Stability Augmentation System (SAS)/BOOST, TRIM, and Flight Path Stabilization (FPS) may be turned off together or separately.

NOTE: Simulated EP in the aircraft will not be initiated or completed by pulling circuit breakers or by turning off batteries, generators, multifunction displays (MFD), Embedded Global Positioning/Inertial Navigation (EGI) systems, primary servos, or tail-rotor servos.

13.3 Forward Observer Seat. No forward observer seat was evaluated.

APPENDIX 1. DIFFERENCES LEGEND

Training Differences Legend

Differences Level	Type	Training Method Examples	Conditions
A	Self-Instruction	<ul style="list-style-type: none"> • Operating manual revision (handout (HO)) • Flightcrew operating bulletin (HO) 	<ul style="list-style-type: none"> • Crew has already demonstrated understanding on base aircraft (e.g., updated version of engine). • Minor or no procedural changes required. • No safety impact if information is not reviewed or is forgotten (e.g., different engine vibration damping mount). • Once called to attention of crew, the difference is self-evident.
B	Aided Instruction	<ul style="list-style-type: none"> • Audiovisual presentation (AV) • Tutorial computer-based instruction (TCBI) • Stand-up instruction (SU) 	<ul style="list-style-type: none"> • Systems are functionally similar. • Crew understanding required. • Issues need emphasis. • Standard methods of presentation required.
C	Systems Devices	<ul style="list-style-type: none"> • Interactive (full-task) computer-based instruction (ICBI) • Cockpit Procedures Trainers (CPT) • Part task trainers (PTT) • Level 4 or 5 flight training device (FTD 4-5) 	<ul style="list-style-type: none"> • Training can only be accomplished through systems training devices. • Training objectives focus on mastering individual systems, procedures, or tasks versus highly integrated flight operations or “real-time” operations. • Training devices are required to assure attainment or retention of crew skills to accomplish more complex tasks usually related to aircraft systems.
D	Maneuvers Devices	<ul style="list-style-type: none"> • Level 6 or 7 flight training device (FTD 6-7) • Level A or B full flight simulator (FFS A-B) 	<ul style="list-style-type: none"> • Training can only be accomplished in flight maneuver devices in a real-time environment. • Training requires mastery of interrelated skills versus individual skills. • Motion, visual, control-loading, and specific environmental conditions may be required.
E	Level C/D FFS or Aircraft	<ul style="list-style-type: none"> • Level C or D full flight simulator (FFS C-D) • Aircraft (ACFT) 	<ul style="list-style-type: none"> • Motion, visual, control-loading, audio, and specific environmental conditions are required. • Significant full-task differences that require a high fidelity environment. • Usually correlates with significant differences in handling qualities.

Checking Differences Legend

Differences Level	Checking Method Examples	Conditions
A	None	None
B	<ul style="list-style-type: none"> • Oral or written exam • Tutorial computer-based instruction (TCBI) self-test 	Individual systems or related groups of systems.
C	<ul style="list-style-type: none"> • Interactive (full-task) computer-based instruction (ICBI) • Cockpit Procedures Trainers (CPT) • Part task trainers (PTT) • Level 4 or 5 flight training device (FTD 4-5) 	<ul style="list-style-type: none"> • Checking can only be accomplished using systems devices. • Checking objectives focus on mastering individual systems, procedures, or tasks.
D	<ul style="list-style-type: none"> • Level 6 or 7 flight training device (FTD 6-7) • Level A or B full flight simulator (FFS A-B) 	<ul style="list-style-type: none"> • Checking can only be accomplished in flight maneuver devices in a real-time environment. • Checking requires mastery of interrelated skills versus individual skills. • Motion, visual, control-loading, and specific environmental conditions may be required.
E	<ul style="list-style-type: none"> • Level C or D full flight simulator (FFS C-D) • Aircraft (ACFT) 	Significant full-task differences that require a high fidelity environment.

APPENDIX 2. MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE

These are the minimum levels of training and checking required, derived from the highest level in the Differences Tables in Appendix 3. Differences levels are arranged as training/checking.

To Related Aircraft ↓	From Base Aircraft →	S-70M	S-70A	S-70C
S-70M		Not applicable	Not evaluated	Not evaluated
S-70A		Not evaluated	Not applicable	Not evaluated
S-70C		Not evaluated	Not evaluated	Not applicable

APPENDIX 3. DIFFERENCES TABLES

Not Applicable.