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# **Lower-Cost Army Training Helicopter Requirement**

## **Presentation**

for

**Elected Representatives**

Revised 7 April 2022

# Agenda

- **Introduction and Expectations**
- **Preamble**
- **Issues**
- **Solutions**
- **Way Ahead**
- **Summary**
- **Background Slides**

# Introduction and Expectations

## ■ Who we are:

- Former instructor pilots, commanders and combat veterans concerned about the quality and cost of pilot training

## ■ Expectations:

- Support for a Congressional Reporting Requirement (CRR) that tasks the DOD/Army to develop a requirement for a more cost efficient and effective training helicopter
  - (The Army develop a requirement for a lower cost training helicopter)
  - (Advisors for four Senators were briefed on the problem and recommended solutions)
  - (Senator Kelly (AZ), Senator Reed (RI), Senator Kaine (VA) and Senator Tuberville (AL))

## ■ Success:

- The DOD or Army Completing the analysis and the reports defined in the CRR
- Develop an approved training helicopter requirement that will:
  - ✓ Save taxpayer funds using a lower cost aircraft
  - ✓ Effectively train pilots in flight fundamentals
  - ✓ Eliminate training delays caused by aircraft availability issues

# Preamble

- Senate Armed Services Committee (SASC) support is needed to compel the DOD to conduct a cost audit of pilot training in the UH-72A at Fort Rucker, AL
- We believe the Army's decision to use the UH-72A as a training helicopter did not adequately consider the acquisition, operational and maintenance cost compared to an appropriate American made single engine helicopter
- The Army's decision is \*wasting 170 million dollars\* each year using an aircraft that is not effective for students to learn fundamental and critical flying skills
- Our presentation will show the UH-72A, a twin engine helicopter, is not an appropriate for training students during the Initial Entry Rotary Wing (IERW) course of instruction
- There are several American made single engine helicopters available that operate at a lower cost and are more effective for training student pilots
- We believe an effective approach is for the SASC to task the DOD to conduct the analysis as described in the attached draft Congressional Reporting Requirement (CRR)

\*[Note: Savings dependent on the training aircraft selected, Slide 13 Details]

# Issues

- The Army Initial Entry Rotary Wing (IERW) qualification course at Fort Rucker, AL utilizes the UH-72A, a complex twin engine helicopter, for primary, instrument, low level navigation and basic combat skills training
- UH-72A is 3 to 5 times more expensive to operate than a single engine turbine or a reciprocating engine helicopter respectively
- Pilot training in flight fundamentals is limited by complex technology that must be simultaneously managed while learning to fly
- Students miss the confidence building of solo flight  
(solo without the instructor in the helicopter)



# Solution

- Develop a requirement for an affordable training aircraft that:
  - Can reduce costs by \$1 to \$2 Billion in 10 years (1.5% to 5% CPI)
  - Would ensure pilots gain experience and confidence in the fundamentals of flight before qualifying in advanced technology helicopters (CH-47, AH-64 and UH-60)



Bell 407Gxi



Sweitzer 300cbi



Bell 505



MD 500E

- Notes:
  - Single engine helicopters are available for Primary, Instruments, Low- level navigation and basic combat skills training
  - The Bell 407Gxi, Sweitzer 300-Cbi, Bell 505 and MD Helicopters 500E are American made and are available for a lower acquisition, operations and maintenance cost
  - Instrument flight certification for the Bell 505 requires an approved FAA Supplemental Type Certification

# Way Ahead

1. Task the Department of Defense through a Congressional Reporting Requirement (CRR) in the National Defense Authorization Act for FY 2023 or other method to: Conduct a thorough economic and cost analysis of training in a twin-engine vs a single engine helicopter and an analysis of Initial Entry Rotary Wing training efficacy
2. Based on the CRR, develop and implement a strategy to:
  - Use Instructor pilot survey recommendations for a training helicopter requirement
  - Use the validated requirement for the acquisition of training aircraft
  - Integrate new training aircraft at Fort Rucker over 3 or more years based on total aircraft requirements and production schedules
  - Re-assign UH-72A aircraft at Fort Rucker to relevant military organizations for disaster relief and homeland defense
  - Position the UH-72A at “Operational Sites” to support the Southern Border Mission
  - Store UH-72A aircraft and use them to replace aircraft that reach expensive component maximum flight hours. (There is no Army Depot level support for the UH-72A)
  - Sell a designated number of the UH-72A aircraft to commercial operators
3. The cost to acquire new training helicopters and retrain instructor cadre is an investment that must be calculated during the analysis. [Estimated between \$120m-\$130m (Qty of 100) Bell 505 or MD 500E]

# Summary

- Support from the Senate Armed Services Committee is essential for a lower cost pilot training solution
- The Army leadership must develop a single engine training helicopter requirement
- Several former army instructor pilots and combat veterans are available for consultation to confirm:
  - ❖ a lower cost single engine helicopter is the right decision to safely qualify pilots during primary, instrument flight, terrain flight navigation and basic combat skills training
  - ❖ a higher cost twin engine training helicopter is not required and does not produce a better pilot prior to transitioning into the assigned combat helicopter, e.g. (UH-60, CH-47, AH-64)
  - ❖ The transition from a single engine helicopter with “simple cockpit layout” to a technologically advanced “flat panel”, multi engine combat helicopter is a proven method
  - ❖ Thousands of pilots completed these transitions successfully prior to the use of the UH-72A as a training helicopter. These pilots received primary training and conducted (actual) solo cross-country flight in a single engine aircraft designated the TH-55 and (pseudo solo flight) in the TH-67
- The transfer of UH-72A designated training aircraft from Fort Rucker will have no impact to the assembly facility located in Mississippi. The Army has completed the purchase of all the Program of Record UH-72A aircraft
- Spending millions of dollars sustaining the UH-72A as a training aircraft is a waste of taxpayer money
- We recommend a meeting to discuss a Congressional Reporting Requirement (CRR) or other DOD and Army Tasking to study, evaluate and recommend (Refer to the attached draft CRR for the details)



# Back Up slides

# Twin Engine Aircraft Primary Trainer Fallacy

- Senior leaders are concerned about the Army's expensive decision to use a twin engine utility helicopter for initial entry pilot training (The UH-72A helicopters were transferred to Fort Rucker from units conducting support missions)
- The argument that using the twin-engine UH-72A is better because the pilot will fly a multi engine combat aircraft is wrong. (It's a waste of resources and an impediment to effective training)
- The second engine provides no advantage to a student pilot mastering fundamentals of flight. The appropriate time to learn to fly with two engines is during the transition into the assigned combat helicopter
- The UH-72A has a computer system that uses data from air sensors and adjusts the hydraulic flight control servos based on wind effects to the aircraft
- The computer assisted flying prevents the student from "feeling" the direct wind effects and developing instinctive inputs to control the aircraft
- Fundamental airmanship skills are effectively taught in an aircraft that is simple to operate. Learning to manipulate the flight controls to maneuver the aircraft during takeoff, inflight maneuvering and landing in adverse wind, slope conditions and confined areas is essential to the safe operation of the aircraft

# UH-72A Lakota Deficiencies

- Not an effective training helicopter
  - The UH-72A is a twin-engine light utility helicopter not optimized for training
  - The UH-72A has a computer guided hydraulic system that adjusts the controls based on wind effects on the aircraft
  - Computer assisted flying interferes with learning fundamental aircraft control
  - Students do not conduct “true solo” flight and get limited training landing the UH-72A in cross wind and slope conditions due to the possibility of mast moment exceedance which requires maintenance actions to diagnose and repair

# UH-72A Lakota Deficiencies

- Acquisition - purchase price significantly higher than an American made helicopter:
  - ❑ Initial Program of Record procurement cost is estimated at 5.5 million each
  - ❑ Cost of 20 additional aircraft procured and delivered to Fort Rucker in 2020 is estimated at 7.8 million each
- Parts are significantly higher cost compared to an American made single engine aircraft
- Operational Cost is \$2,434 per hour based on DOD published flying hour rates

# Lower cost Aircraft Advantages

- Acquisition - purchase price:
  - ❑ Sweitzer 300Cbi (Instrument flight capable) \$530k x 100 = \$53m
  - ❑ Bell 407G (Instrument flight capable) \$3.5m x 100 = \$350m
  - ❑ Bell 505 (Instrument flight requires FAA Certification) \$1.2m x 100 = \$120m
  - ❑ MD 500E (Instrument flight capable) \$1.3m x 100 = \$130m
- Parts are lower cost compared to a twin-engine aircraft made with components manufactured in other countries
- Operational Hourly Cost based on market survey:
  - ❑ Sweitzer 300Cbi is \$155
  - ❑ Bell 407Gxi is \$575
  - ❑ Bell 505 is \$440
  - ❑ MD 500E is \$432
- Training
  - Learning to fly an aircraft using flight controls without computer assistance provides the pilot critical skills and experience
  - Conducting “actual” Solo flight builds confidence and inculcates the training of fundamental flying skills

# Projected Savings

- 1,000 students per year - 83.6 hours per student - Multi Year projection with 5% inflation per year

## Estimated Cost to Operate Training Aircraft

### LUH UH-72A

$\$2,434 \times 83.6 = \$203,482$   
 $\$203k \times 1,000 = \$203m$   
 $\$203m \times 10yrs = \$2.56b$

### Bell 407 Gxi

$\$575 \times 83.6 = \$48,070$   
 $\$48,070 \times 1,000 = \$48.07m$   
 $\$48.07m \times 10yrs = \$604.07m$

### S-300 Cbi

$\$155 \times 83.6 = \$12,958$   
 $\$12,958 \times 1,000 = \$12.96m$   
 $\$12.96m \times 10yrs = \$162.98m$

### Bell 505

$\$440 \times 83.6 = \$36,784$   
 $\$36,784 \times 1,000 = \$36.78m$   
 $\$36.78m \times 10yrs = \$462.66m$

### MD 500E

$\$432 \times 83.6 = \$36,115$   
 $\$36,115 \times 1,000 = \$36.15m$   
 $\$36.15m \times 10yrs = \$454.25m$

Additional analysis is required for all aircraft selected for consideration

## Multi Year Accumulative Cost Savings vs UH-72

S-300 Cbi - reciprocating engine  
 Bell 407Gxi/ 505 - turbine engine  
 MD 500E - turbine engine

	<u>Bell 407 Gxi</u>	<u>S-300 Cbi</u>	<u>Bell 505</u>	<u>MD 500E</u>
yr1	\$155m	yr1 \$191m	yr1 \$167m	yr1 \$167m
yr5	\$858m	yr5 \$1.05b	yr5 \$921m	yr5 \$925m
yr10	\$1.95b	Yr10 \$2.39b	Yr10 \$2.09b	Yr10 \$2.10b
yr15	\$3.35b	yr15 \$4.11b	yr15 \$3.59b	yr15 \$3.61b
yr20	\$5.13b	yr20 \$6.29b	yr20 \$5.51b	yr20 \$5.53b

- These illustrations assume aircraft are available for training 1,000 students Annually
- The 83.6 hours includes primary, instruments, low-level navigation and combat skills training