

United States Army Aviation Center
US Army Warrant Officer Career College
Fort Rucker, Alabama 36362
10 September 1984

ATZQ-T-CT-WOSC II

SUBJECT: CH-47 Enlisted Crewmember Standardization

1. PROBLEM: To determine whether the CH-47 enlisted crewmember should be incorporated into the army's current Aircrew Training Manual (ATM) program.
2. ASSUMPTION: The CH-47 helicopter will continue to be employed in its basic configuration and under present doctrine well into the 1990's.
3. FACTS BEARING ON THE PROBLEM:
 - a. The minimum crew required to fly the CH-47 helicopter under normal conditions is a pilot, copilot and flight engineer. The flight engineer has specific duties listed in the crew duty section of the aircraft's operator manual.
 - b. There is no formalized Department of the Army (DA) flight engineer training nor standardization program in existence.
 - c. The flight engineer is an integral crewmember and plays a key role in the operation of the CH-47 Chinook.
 - d. The current ATM program does not have a provision for enlisted crewmembers.
4. DISCUSSION: (Annex A)
 - a. The present military occupational specialty (MOS) for CH-47 enlisted crewmembers is inadequate. Flying crew duties are not formally taught at any service school. Local on-the-job training programs aren't standardized. No formal DA publication describes the enlisted crewmembers' real MOS.
 - b. The CH-47 flight engineer plays an important role in the operation of the aircraft. Current selection, training, and evaluation of these crewmembers differs greatly between units. Although recognized in first edition ATM's, today, guidance for enlisted crewmembers is noticeably absent. Training deficiencies often show up in aircraft accident reports. (Annex B)

c. Establishing a formal CH-47 enlisted crewmember standardization program would be no easy task. Interface between job descriptions, soldiers manuals, and ATM's would be an administrative nightmare. Revamping of the entire enlisted crewmember MOS system might be needed. Necessary inter-agency coordination would be complicated and time-consuming.

5. CONCLUSIONS:

a. A formal CH-47 enlisted crewmember standardization program would require significant time, personnel, and the necessary monetary assets. It would demand single-agency responsibility to insure its success.

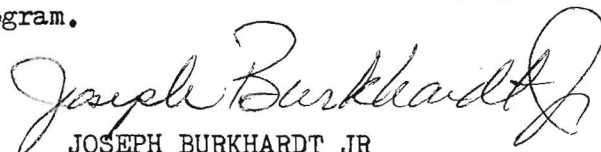
b. The problems brought about by the lack of centralized control will not go away. A CH-47 enlisted crewmember standardization program at the DA level is long overdue. Over half of all Chinook crew error accidents are related to the enlisted crewmember. The present haphazard OJT training must be controlled with standard criterion and a check and balance system applied from the top.

c. The need for crewmember standardization was discovered in 1977. As was determined then, the best implementation vehicle is the Aircrew Training Manual. Selecting existing field-developed programs as the basis would minimize start-up efforts. Moreover, utilizing the ATM would keep all flight related standards together and encourage much needed cooperation and teamwork among pilots and enlisted crewmembers.

6. ACTIONS RECOMMENDED:

a. Establish an Additional Skill Identifier (ASI) for the CH-47 enlisted crewmembers' MOS.

b. Embody the CH-47 enlisted crewmember standardization program within the army's current ATM program.


JOSEPH BURKHARDT JR
CW3, USA

ANNEXES: A--Detailed Discussion
B--Letter, PESC-SS, 2 Aug 83

ANNEX A

DETAILED DISCUSSION:

a. At best, the present MOS system for CH-47 enlisted crewmembers is inadequate. The 67U MOS progresses from a mechanic, -10 level through supervisor, -40 level. Tasks relating to flying crew duties are not formally taught. Mechanic duties are not synonymous with crewmember duties. Currently, most crewmembers are trained through local on-the-job training (OJT). The majority of the OJT programs train the EM crewmember first as a crew chief (CE), and later as a flight engineer (FE). The typical program is not standardized, usually contains few evaluations and performance checks, and varies extensively between units. Although there is a cursory listing of CH-47 FE duties in Chinook operator manuals, no reference manual exists that describes these duties nor encompasses all elements of the job. In summary, there isn't any real official acknowledgement given the CH-47 enlisted crewmembers save for flight record and flight pay purposes.

b. Aside from the fact that the CH-47 FE is a required crewmember, his position is an integral part and he plays a key role in the day to day operation of the Chinook helicopter. For proof one need only to observe a single CH-47 mission. Yet, it wasn't until the recent production of the sophisticated CH-47 "D" model that renewed interest spawned for the formulation of a CH-47 enlisted crewmember standardization program. Even though the program was recognized by DA in the 1977 first edition of the ATM, the current selection, training, and evaluation of CH-47 enlisted crewmembers is left entirely up to the individual unit. In fact, the present CH-47 ATM doesn't even mention enlisted crewmembers. Instead, the unit commander selects personnel he wants as CE's and FE's. These personnel may or may not receive flight crew training. And, as already noted, any training they do receive is OJT. Because no DA-level standardization or evaluation guidance is published, standards as well as specific duties vary significantly between units. In spite of this, most CH-47 units do have their own local enlisted crewmember standardization programs in one form or another. However, training concepts differ from unit to unit and an army-wide program just doesn't exist. These training deficiencies often show up in aircraft accident reports.

c. Establishing a formal enlisted crewmember standardization program involves alot more than what meets the eye. As a minimum, it would require an ASI to the present CH-47 MOS of 67U. In the long term, it might even mean a complete reorganization of the entire enlisted MOS system as it pertains to aviation. Additionally, Soldier Manuals and AR 611-201, MOS Job Descriptions would need to be re-written. Traditionally, Fort Eustis is the proponent for enlisted helicopter repairmen, MOS 67U. On the other hand, Fort Rucker is the proponent for all aviation flight courses. Still a third agency involved would be the Aviation Systems Command at St. Louis, which is presently training enlisted crewmembers concurrent with the fielding of the CH-47D. Coordination between these and other DA agencies would be no small undertaking. In the end, someone would have to write a comprehensive program; inter-act between numerous DA agencies; establish an institutional crewmember course; and finally, provide each Chinook company with the means to manage the outcome.

ANNEX B



DEPARTMENT OF THE ARMY
UNITED STATES ARMY SAFETY CENTER
FORT RUCKER, ALABAMA 36362

REPLY TO
ATTENTION OF

PESC-SS

2 AUG 1983

SUBJECT: Training, Standardization and Evaluation of CH-47 Enlisted
Crewmembers

Commander
US Army Training & Doctrine Command
ATTN: ATCD-B
Fort Monroe, VA 23651

1. Reference:

a. Meeting, Fort Eustis, VA, 21-23 June 1983, SAB.

b. Message, DRCPM-CH47M-LM, 301400Z Jun 83, subject: CH-47D Enlisted
Flight Crewmembers.

2. During reference 1a meeting, the need for establishment of a formal
training, standardization, and evaluation program for CH-47 enlisted flight
crewmembers was discussed and recognized.

3. Reference 1b requests establishment of a program for training,
identification, standardization, evaluation and personnel management for
CH-47D enlisted flight crewmembers.

4. Since 1 January 1976, there have been 55 accidents caused by flight crew
error in the CH-47 fleet. There were 8 Class A, 20 Class B, 24 Class C, and 3
Class E accidents, with a total damage cost of \$17,129,015 and 7 fatalities.

5. Of the 55 accidents, enlisted crewmembers directly contributed to or
caused 29 (52.7%). These 29 accidents cost \$7,180,044 and a synopsis of each
is inclosed.

6. We feel that these accidents may have been prevented had the enlisted
crewmembers been better trained and utilized standardized procedures. As
cited in reference 1b, there is no training, standardization, and evaluation
program for enlisted crewmembers.

7. Based on the accident data above, the fielding of the CH-47D helicopter,
and the necessity for enlisted flight crewmembers to perform as an integral
part of the flight crew, request formal training, standardization and
evaluation programs be developed and expeditiously implemented for CH-47
enlisted flight crewmembers.

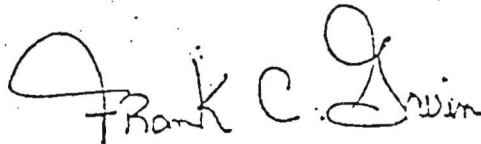
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PESC-SS

SUBJECT: Training, Standardization and Evaluation of CH-47 Enlisted
Crewmembers

8. POC is MAJ Ron Isbel, PESC-SS, AUTOVON 558-4202/4198. *Sgt Reed*

FOR THE COMMANDER:



FRANK C. GAVIN
MAJ, IN
Executive Officer

1 Incl
as

CF:
CDR, AVRADCOM, ATTN: DRCPM-CH47M-LM
CDR, USATSCH, ATTN: ATSP-DT-TM
CDR, USAAVNC, ATTN: ATZQ-ES-NETD
CDR, TSARCOM, ATTN: DRSTS-WC
CDR, FORSCOM, ATTN: AFLG-FMA
HQDA (DALO-AV)
HQDA (DAPE-HR)
HQDA (DAPE-HRS)

ANNEX B. 2 of 4

ACCIDENT SYNOPSES

- Enlisted crewmembers allowed blade tracking flag pole to contact main rotor blades. This was a Class B accident with \$34,354 damage costs.
- Enlisted crewmember reported fire on wrong engine. Based on this information, the pilot shut down the good engine and on final approach the other engine failed resulting in a hard landing. This was a Class B accident with \$117,004 damage costs.
- Enlisted crewmember, after aircraft run-up, attempted replacement of ICS panel in cockpit. He placed ICS panel on the emergency engine trim switches causing rotor overspeed. This was a Class C accident with \$604 damage costs.
- Enlisted crewmember improperly supervised maintenance during unscheduled engine transmission replacement. An engine transmission cowling barrel nut was ingested into engine during runup. This was a Class B accident with \$147,000 damage costs.
- Enlisted crewmember improperly stowed wheel chocks after runup. When he raised the cargo loading ramp for takeoff, they wedged between ramp and airframe causing damage. This was a Class C with \$428 damage costs.
- Enlisted crewmember did not properly diagnose an in-flight vibration and he excited the pilots by his erratic and irrational actions which caused the pilots to overreact to the situation and overcontrol the aircraft. This resulted in extensive damage to the aircraft. This was a Class A accident with \$2,132,000 damage costs.
- Enlisted crewmembers' failure to follow established procedures resulted in 2 Class C injuries:
 - Enlisted crewmember fell out of right cabin door while aircraft was at a 10-15 ft hover resulting in fracture of his right elbow.
 - Enlisted crewmember noticed excessive grease around the #8 drive shaft bearing while in flight. He attempted to wipe grease off with rag. Rag became entangled in drive shaft pulling his hand into drive shaft resulting in multiple fractures to hand and fingers.
- Enlisted crewmember improperly cleared aircraft in confined area and during taxiing resulting in aft rotor blade strikes. This caused 2 Class A, 4 Class B, and 1 Class C accidents with \$4,704,155 damage costs.
- Enlisted crewmember gave improper directions to pilot during sling load operations resulting in aircraft striking load, damaging the load and aircraft structure. This caused 2 Class C and 1 Class E accidents with \$860 damage costs.
- Enlisted crewmember improperly secured cowlings and tunnel covers which blew off in flight damaging airframe structure. This caused 5 Class C accidents with \$12,853 damage costs.

-- Enlisted crewmember improperly supervised and participated in off-loading internal cargo loads which struck inside of aircraft structure. This caused 3 Class C accidents with \$13,896 damage costs.

-- Enlisted crewmember did not properly recon LZ. When he lowered cargo ramp, it struck a tree stump resulting in a Class C accident with \$13,704 damage costs.

-- Enlisted crewmember improperly rigged an external cargo sling load which struck aircraft resulting in a Class C accident with \$400 damage costs.

-- Enlisted crewmember did not perform a special inspection after washing his aircraft which resulted in ice forming in the main drive shafts causing structure damage on runup. This was a Class C accident with \$2,750 damage costs.