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AUTHORITY

AGO ltr 29 Apr 1980

DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D C. 20310

IN REPLY REFER TO

AGDA (M) (28 Oct 70) FOR OT UT 702238 12 November 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 520th Transportation Battalion, Period Ending 30 April 1970

SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation in accordance with paragraph 4b, AR 525-15. Information of actions initiated as a result of subject report should be forwarded to ACSFOR OT UT within 90 days of receipt of covering letter.

2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

Kenneth G. Wickham

KENNETH G. WICKHAM
Major General, USA
The Adjutant General

1 Incl
as

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UNCLASSIFIED REPORT
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ASSISTANT CHIEF OF STAFF FOR FORCE DEVELOPMENT
(ARMY) ATTN: FOR OT UT, WASHINGTON, D.C. 20310

DEPARTMENT OF THE ARMY
HEADQUARTERS, 520TH TRANSPORTATION BATTALION (AM&S) (GS)
APO 96289

AVGFP-O 14 May 1970

SUBJECT: Operational Report - Lessons Learned 520th Transportation Battalion (AM&S) (GS) Period Ending 30 April 1970, RCS CSFOR-65 (R2)

Commanding Officer
34th General Support Group (AM&S)
ATTN: AVGF-B
APO 96309

1. Operations: Significant Activities.

a. During this quarter, the 520th Transportation Company (GS) was re-inspected by the USARV Command Maintenance Management Team of the 34th General Support Group (AM&S), and received a satisfactory rating. All companies assigned to the battalion are presently undergoing internal battalion pre-AGI assistance visits in preparation for the scheduled USARV AGI during the next quarter.

b. The battalion personnel section in-processed 14 officers and 151 enlisted personnel, and out-processed 10 officers and 302 enlisted personnel. This inbalance of 151 enlisted personnel coupled with the replacement of many highly skilled technicians with newly schooled trained personnel has had a deleterious effect on the overall operations of the battalion. Additionally the skill base of the civilian contract personnel has decreased in some areas.

c. In addition to the assigned operational mission, the battalion units participated in 432 hours of mandatory refresher training. Specialized training for selected enlisted personnel was accomplished through the Battalion Training Program and through the use of the Army Aviation Refresher Training School (AARTS). The battalion instruction included a 14 hour block for all newly assigned personnel and was tailored to the local area and mission, plus the requirements as prescribed in USARV Reg 350-1. The class on drugs and narcotics, has been continued as a basic requirement in the orientation for all newly assigned personnel. Each assigned unit also includes a drug abuse class as a part of their recurring quarterly training requirements. Thirty personnel attended AARTS Courses at Vung Tau. Eleven technical supply personnel attend the NCR 500 course at Long Bien. Thirteen pilots were transitioned through formal flight training at Vung Tau (eleven

FOR OT UT
702238
Inclosure

in the OH-58, one in the OH-6A, and one in the AH-1G). One ground school class was conducted by this battalion's recovery section for 24 pilots of the 213th ASHC. The class covered the -10 (operation and performance data) for the Super CH-47C One aviator completed an in-coutry CH-47 transition utilizing battalion assets. One CH-47 repairman completed the Stablization Augmentation System (SAS) Course at Vung Tau.

d. The battalion presently supports a total of 1177 aircraft and two Air Cushion Vehicles. The decrease in the total number of aircraft was the result of support realignment. Added for support were the following units: Hq & A Co, 15th Trans Bn; Hq Co, 1/9 Cav; C Trp, 1/9 Cav; Hq Co, 2/20 ARA; B Trp, 2/20 ARA; and Hq Co, 228 Bn. The following supported units were dropped: 1st Avn Bn, C Trp, 16th Cav; 1st MI Det and the 57th Med Det. A Total of 739 aircraft were repaired and returned to the user; 647 of these were repaired by Battalion Direct Support Companies and 92 by the General Support Company. The decrease in total work orders is not a true indicator of the mission posture of the battalion. Throughout the previous quarter, the total hours of backlog has been increasing, and as of this date, reflects a total of 38,806 hours. As a significant comparison, during the past six months, the average in-shop time per aircraft at direct support level has increased from six to 14.8 days, while the average monthly aircraft production at direct support level has decreased from 112 to 58.5 aircraft per month. The most significant factors contributing to the increase are; lower experience level of assigned personnel, the shortage of personnel in both supported and supporting units, the increase in high-time theater aircraft, extensive man-hours required for 1800 hour PMP's on CH-47's and 2200 hour PMP's on UH-1 aircraft, and the increased flying hour requirements of supported aircraft. An increase in both the number of aircraft in shop over 30/45 days, the number of customers having low operational ready percentages, and those requesting assistance, has continued to rise with no downward trend in sight.

e. A total of 2538 non-programmed components were received during this quarter, while 2555 components were repaired and returned to the supply system or the user. The Theater Aircraft Reparables Program (TARP) had an input of 757 items, of these 723 items were repaired and returned to stock.

f. On 19 March 1970, the battalion was relieved of responsibility for operation of the Aircraft Processing Detachment (APD) in Saigon. This was in conjunction with the transfer of the 166th Aviation Maintenance Detachment from the battalion to USAMMC. Since coming under the battalion's control in October 1969, the 166th (APD), augmented with personnel and equipment from battalion resources, has processed the majority of the Army Aircraft arriving and departing the theater During the period 1 February 1970 through 19 March 1970, the Aircraft Processing Detachment received 162 new aircraft for assembly and issued 166, leaving on hand 52 Ready for Issue Aircraft. A total of 72 aircraft were processed for retrograde with 33 of these aircraft returned to CONUS.

g. The Aviation Electronic Support Company Central (Provisional), repaired 16,374 avionics components and completed 866 work orders in conjunction with aircraft repair during the quarter.

h. The three Direct Support Supply activities (DSSAs) within the battalion received a total of 60,072 request for repair parts, of which 52,256 were authorized stockage lists (ASL) requests. ASL issues totalled 37,416. This demand satisfaction of 70 percent is a 9 percent increase over the previous quarter. This increase is attributed to: an identification and relocation survey performed in conjunction with an inventory at each DSSA and the continuous review and deletion of all excess and non demand supported stockage.

i. The battalion consolidated recovery section accomplished 151 maintenance evacuations and 100 field extractions.

j. The battalion daily courier flights transported 3,946 passengers and 41.35 tons of cargo.

k. Battalion Armament maintenance shops received 1,380 armament components for repair, while 1,303 items were repaired and returned to the user or theater stock.

l. As a civic action project, on 13 March 1970, the 20th Transportation Company (ADS) delivered 125 desks to the An Thau Hamlet School. The desk were constructed from discarded ammo boxes by volunteers of the 20th Transportation Company (ADS). The members of the 20th have greatly influenced the Vietnamese self help program and are continuing to assist in community projects in order to raise the security classification of the hamlet to qualify them for CVN assistance. Personnel of the battalion visited DA Minh Orphanage on 17 February 1970 to survey the possibility of installing a water system donated by the Briar Lake Baptist Church of Decatur, Illinois. The battalion chaplain's office coordinated the effort and volunteers installed the pump on 21 February 1970. Personnel of the battalion have also contributed funds to be used for the purchase of clothing, school book bags, tooth brushes, soap and tooth paste for the children at the An My School. As a result each student will receive a gift during a graduation party scheduled for 21 May 1970, plus, the honor students will also receive an extra gift in recognition of their efforts.

m. An Airforce OV-10 aircraft crashed into the billet area of the 20th Transportation Company, 8 April 1970, destroying two buildings and damaging three. Thankfully only one minor injury (no hopitalization required) resulted from the incident. Cu Chi Pacific Architect and Engineering crews reconstructed and repaired the destroyed and damaged billets. Work was completed except for electrical wiring on 16 April 1970.

n. Battalion Organization: During this reporting period, the battalion consisted of Headquarters, and Headquarters, Company, the 20th Transportation Company (ADS), the 165th Transportation Company (ADS), the 605th Transportation Company (ADS), the 539th Transportation Company (ACS), the Aviation Electronics Company, Central (Provisional). The 166th Aviation Maintenance Detachment (SA) was released from attachment, 19 March 1970. The AVEL Company Central (Provisional) remains as the only provisional avionics company in the theater, the

other three units have been reorganized under MTOE 29-134F. The organizational structure of reporting organizations is contained in Inclosures 4 through 7.

2. Lessons Learned: Commanders Observations, Evaluation, and Recommendations.

a. Personnel: None

b. Intelligence: None

c. Operations:

(1) Installation of OH-58 Oil Tanks.

(a) Observation: On several occasions after engine change, the oil tank on the OH-58 has ruptured during engine run up because of improper installation of the connecting lines.

(b) Evaluation: The oil vent line can be easily crossed with the oil inlet line, which will cause the tank to rupture if not discovered prior to engine run-up. The connection points are clearly marked on the engine as well as the oil tank; however, both lines are marked "Lubrication" and the fittings are of the same diameter and type.

(c) Recommendation: That a different size or type fitting be used on one set of the lines to prevent reverse installation.

(2) Free-wheeling unit oil leak on T-63 Engines.

(a) Observation: A severe oil leak will occur at the free wheeling unit in approximately 75 percent of the engine changes performed on OH-58 aircraft.

(b) Evaluation: The free-wheeling unit is not a component of the basic engine and therefore must be removed from the old and reinstalled on the new engine. It is a common aircraft maintenance practice to replace "O" rings on components whenever components are removed and reinstalled. If this is not accomplished when changing the T-63 engine, leakage at the free wheeling unit will often occur around the packing (FSN 5330-618-1657) and the seal (FSN 5330-174-4032). The seal and packing apparently ride in a slightly different position on the shaft with each engine installation, which when coupled with the crystallization which occurs through previous use of the seal and packing, results in a leak.

(c) Recommendation: That the required seal and packing be force issued with each T-63 engine and that future editions of TM 55-1520-228-35 specify the replacement of both the seal and the packing as a mandatory requirement for each engine change.

(3) UH-1C and AH-1G Hydraulic Servo failure. (FSN 1650-179-0964).

(a) Observation: The main rotor hydraulic servo teflon channel seal (FSN 5330-462-5412), is causing excessive wear on the inside of the cylinder (FSN 1650-931-2347).

(b) Evaluation: The use of the teflon seal decreases the life of the servo and can cause internal failure by scarring the walls of the cylinder. The purpose of this seal is to hold the "O" ring in place and assist in the sealing of the servo.

(c) Recommendation: That the cylinder wall be fitted with a stainless steel ring which would be more durable than the present metal. In addition the "O" rings could be changed and fitted to a larger groove in the piston, thus eliminating the need for the teflon channel seal.

(4) AH-1G Swashplate Installation.

(a) Observation: Improper torque values have been applied to the cap and outer race retaining nuts on several AH-1G swashplates that have been torn down for inspection and/or overhaul.

(b) Evaluation: Improper torque on the swashplate assembly causes uneven wear on the shims (FSN 1615-799-0466) and (FSN 5340-871-5775). The end result is a shorter life of the swashplate assembly and a vibration in the rotor system (2 to 1 shuffle).

(c) Recommendation: That organizational units retorque the cap and outer race at each PMI. The appropriate torque and other pertinent information may be found in TM 55-1520-221-35.

(5) AH-1G Helicopter Engine Deck Separation.

(a) Observation: An AH-1G helicopter was received with separations or voids in the honeycomb engine deck panel. No repair is authorized in this area (See Incl 1)* and the panel cannot be replaced without special jigs to maintain the airframe alignment during replacement. Rather than retrograde the aircraft a determination was made to attempt the repair in country. The AVSCOM Engineer developed and approved two separate fixes; the first of which was unsuccessful, the second still in progress with 1000 maintenance manhours expended thus far out of a 2000 hour estimate.

(b) Evaluation: Similar voids have been common in the past, in the same area, on the UH-1 series helicopter. This is the first, and thus far the only void to develop in this area on the AH-1G. With no visible marks on the upper panel surface to indicate improper engine removal or alignment procedures utilizing jacks, it must be assumed that either the panel was improperly bonded during manufacture; or, that abnormal stresses, possibly in flight, caused the initial separation of the panel. The first repair was identical to the standard

*Incl 1 w/d HQ DA--illegible

repair authorized on honeycombed panels. Holes of .040 inch diameter were drilled in and around the void, epoxy compound (EPON 934) injected until it began to ooze from the adjacent holes, and then the compound was allowed to cure for a twenty-four hour period. This procedure was used on two occasions and both times the epoxy failed to hold and the voids spread even further. The second fix recommended, incorporated a similar epoxy procedure with the addition of stainless steel sheets on both the upper and lower panel surfaces held together with bolts and spacers. This may be acceptable; however, with the work that has been accomplished thus far, there is no way to determine the cause of the initial void nor develop a panel redesign or engineering fix.

(c) Recommendation: That the next AH-1G helicopter with a similar void be immediately retrograded to CONUS for engineering evaluation.

(6) Component Interchange for ARC-51X and ARC-51BX, UHF radio.

(a) Observation: Technicians are experiencing difficulty in interchanging the third stage IF module for the ARC-51 and the ARC-51BX.

(b) Evaluation: Technicians are attempting to use the third IF module (PN 528-0086-XX5) designed for use in the ARC-51X as the third IF module in the ARC-51BX without readjusting the sensitivity control. As a result they are unable to perform squelch action with the radio. The third IF module (PN 528-0501-XX5), designed for use in the ARC-51BX, CANNOT be used in the ARC-51X since the three pins of the main connector are not wired to give squelch operation in the ARC-51X.

(c) Recommendation: That technicians working with the third IF module of either the ARC-51X or the ARC-51BX insure they have properly adjusted the sensitivity control when using the 0086 part number. The 0501 part number can be used only with the ARC-51BX.

(7) AN/ARC-114 Supply difficulties.

(a) Observation: The next higher assembly (complete front panel) is issued when a function shaft switch for the ARC-114 is ordered.

(b) Evaluation: On four occasions, the function shaft switchs(PN-SM-B-618021) have been requisitioned. In each case a front panel assembly, (PN-SM-B-618565) (FSN 5821-179-8519) has been received. No Federal Stock Number (FSN) is listed for the function switch and this may be the reason for the release of the next higher assembly rather than the switch itself.

(c) Recommendation: That an FSN be assigned to the function shaft switch as listed in TM 11-5821-259-35, page B-6, line PO-26, DA Form 2028 submitted 28 April 1970.

(8) AN/ARC-114 Faulty function switch.

(a) Observation: Function switch A1MP6 is faulty.

(b) Evaluation: The function switch A1MP6 is pressed into the chain sprocket. After several hours of operation, the switch shaft works loose and disengages from the sprocket. This renders the radio inoperative. Spot welding of the switch shaft to the sprocket will solve the problem. It requires approximately one manhour to disassemble, spot weld, and reassemble the radio. The spot weld requires less than a minute.

(c) Recommendation: That the manufacture, spot weld the function switch chaft to the sprocket as a part of the manufacturing process. EIR submitted 4 May 1970.

(9) Alignment of the RT-823/ARC-131.

(a) Observation: Some difficulty is being experienced in aligning the ARC-131 when the ME-57 Deviation Meter is not available.

(b) Evaluation: The ME-57 Deviation Meter is specified for frequency alignment for the ARC-131. Units without this meter available may use the ME-30 AC Voltmeter for alignment purposes if the following two steps are performed prior to attempting any alignment of the ARC-131:

1. Connect the ME-30 probe to TP 8704 on the 8700 board of the RT Unit.

2. Adjust the variable resistor (R8605)on the audio mixer to a reading of .038 volts on the ME-30. Adjustment limits should not be less than .036 volts nor greater than .040 volts.

(c) Recommendation: That all avionics units be made aware of this alignment procedure.

(10) Failure of Power Supply, AN/APX-72.

(a) Observation: Power Supply units made by Trio Labs are experiencing high failure rates.

(b) Evaluation: Examination of a failed unit revealed that the junctions of current sensing resistor with the circuit had become loosened from excess heat.

(c) Recommendation: That sets containing these units have the current resistor removed and leads retinned with new solder to prevent this problem.

(11) Cleanliness of Intervalometer Circuit Boards.

(a) Observation: Dirt and hydraulic fluid collect on the back of the circuit cards.

(b) Evaluation: This condition produces either multiple pulse signals or no signal at all, and the XM-28 could be caused to misfire as a result. If the 40mm is being fired when the mini-gun misfires, the 40mm grenades could conceivably detonate in front of the aircraft causing serious damage or loss of life.

(c) Recommendation: That the back of the intervalometer Circuit Card be kept clean by sealing the rear panels with a water resistant tape.

(12) Assembly of UH-1 Main Driveshaft Assembly.

(a) Observation: To assist in the assembly and grease packing of the UH-1 main driveshaft, a modification can be added to the holding fixture (FSN 4920-876-0131). It is placed on top of the holding fixture as shown in the inclosed diagram (Inclosure 2).

(b) Evaluation: The modification is made of aluminum and consists of a cylinder 1 7/8" high and 4" in diameter. The fixture stablizes the driveshaft during assembly and also aids in grease retention as it prevents the driveshaft from sliding down into the coupling. During periods of storage the cylinder is left in place to maintain the grease wall of .020-.030 inches above the top of the splines.

(c) Recommendation: That the described fixture be utilized to stabilize the driveshaft during assembly, and in maintaining the grease wall as required in accordance with TM 55-1520-210-35-2 and TM 55-1520-210-20.

d. Organization: None

e. Training: None

f. Logistics: None

g. Communications: None

h. Material: None

i. Other: None

Robert E. Ainslie
ROBERT E. AINSLIE
LTC, TC
Commanding

6 Incl
as
Incl 1, 3&4 wd HQ DA

AVGF-B (14 May 70) 1st Ind CPT Kirila/rph/923-4325
SUBJECT: Operational Report Lessons Learned, 520th Transportation Battalion (AM&S) (GS), Period Ending 30 April 1970, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 34TH GENERAL SUPPORT GROUP (AM&S), APO 96309 16 JUN 1970

TO: Department of the Army, ATTN: ACSFOR, Washington, D,C. 20310

1. This headquarters has reviewed the Operational Report Lessons Learned, for the quarterly period ending, 30 April 1970 for Headquarters, 520th Transportation Battalion (AM&S) (GS).

2. Comments follow: Reference Section 2, Lessons Learned, Operations, paragraph 11, concerning cleanliness of Intervalometer Circuit Boards. Nonconcur. The intervalometer has no effect on the operation of the AM-26 system. Paragraph 11b should be deleted. The basic cleanliness premise is sound. The position of the AG-1G intervalometer, which controls the rocket wing stores, makes it very difficult to keep hydraulic fluid from leaking into it. Weapons Command is planning to move the intervalometer to a position in the wing of the AH-1G. Until this repositioning takes place, supervisors at all levels will have to insure that the intervalometer is cleaned and dried after each flight or before the next flight.

3. This headquarters concurs with the remaining observations, evaluations and recommendations and has no further comment.

FOR THE COMMANDER:

W. L. DAMPIER
CPT, AGC
Adjutant

AVHGC-DST (14 May 70) 2d Ind
SUBJECT: Operational Report - Lessons Learned 520th Transportation Battalion (AM&S)(GS) Period Ending 30 April 1970, RCS CSFOR-65 (R2)

Headquarters, United States Army Vietnam, APO San Francisco 96375 13 JUL 1970

TO: Commander in Chief, United States Army Pacific, ATTN: GPOP-DT, APO 96558

1. This Headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1970 from Headquarters, 520th Transportation Battalion (AM&S)(GS) and comments of indorsing headquarters.

2. Comments follow:

a. Reference item concerning "Imbalance of Enlisted Personnel," page 1, paragraph 1b: nonconcur. Assignments of enlisted replacement personnel are made to each of the major commands on a fair and equitable basis. It would appear that the imbalance of personnel assigned to the 520th Transportation Battalion (AM&S)(GS) may be due in part to the distribution of replacement assets received by the Group Headquarters, since assignments are normally made by this Headquarters to major commands, i.e., 34th GSG. Enlisted strength status for the 34th GSG on 30 April 1970 was: Auth: 4,597; Asgd: 4,259 (93%). Enlisted strength status as of 24 June 1970 was: Auth: 4,597; Asgd: 4,406 (96%). No action by USARPAC or DA is recommended.

b. Reference item concerning "AH-1G Helicopter Engine Deck Separation," page 5, paragraph 2c(5): concur. However, the retrograde of an aircraft to CONUS for repair is dependent upon the total work to be performed on that aircraft. The 34th General Support Group is monitoring this unique problem, and is awaiting the results of the present repair work. No action by USARPAC or DA is recommended.

c. Reference item concerning "Failure of Power Supply, AN/APX-72," page 7, paragraph 2c(10): concur. The corrective measures outlined in the recommendation are authorized to be performed at the general support level of maintenance or higher. The 34th General Support Group is taking action to inspect and repair these power supply units. No action by USARPAC or DA is recommended.

FOR THE COMMANDER:

D. J. Winter
CPT, AGC
Assistant Adjutant General

Cy furn:
34th General Support Gp
520th Trans Bn

GPCP-DT (14 May 70) 3d Ind
SUBJECT: Operational Report of HQ, 520th Transportation Battalion (AM&S)(GS), for Period Ending 30 April 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 21 AUG 70

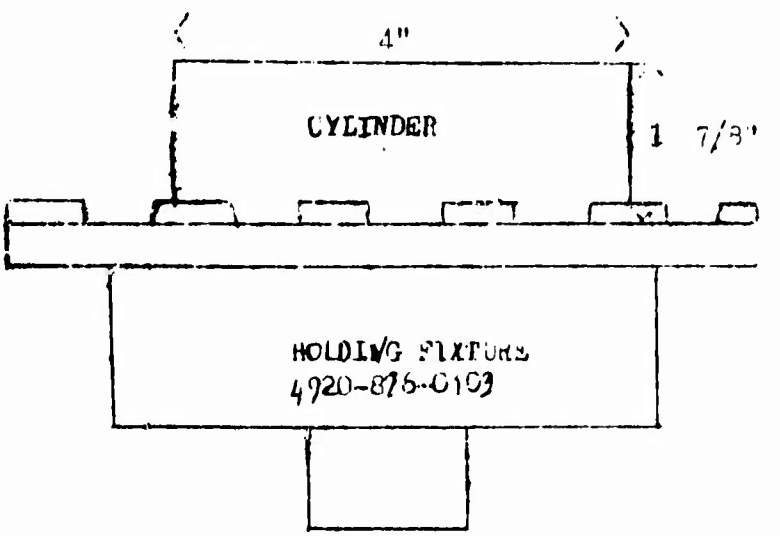
TO: Assistant Chief of Staff for Force Development, Department of the Army, Washington, D. C. 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

D. CLINE
2LT, AGC
Asst AG

UH I DRIVESHAFT MODIFICATION



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