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In Reply Refer to  
AGAM-P (M) (20 Feb 69) For OT UT 684231 3 March 1969

SUBJECT: Operational Report - Lessons Learned, Headquarters,  
Americal Division Artillery, Period Ending 31 October 1968.

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1. Subject report is forwarded for review and evaluation in accordance with paragraph 5b, AR 525-15. Evaluations and corrective actions should be reported to ACSFOR OT UT, Operational Reports Branch, 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  
MAJOR GENERAL, USA  
The Adjutant General

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as

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Americal Division Artillery

1. (C) Section I: Operations: Significant Activities

a. Command:

(1) Division Artillery commands the following assigned or attached units:

3d Battalion, 16th Artillery (155T): Assigned  
3d Battalion, 18th Artillery (8"/175mmSP): Assigned  
1st Battalion, 82d Artillery (155T/8"SP): Assigned  
6th Battalion, 56th Artillery (Hawk): Assigned  
Battery G, 55th Artillery (FG): Assigned  
3d Platoon, Battery G, 29th Artillery (Searchlight):

Attached

251st Countermortar Radar Detachment: Assigned  
252d Countermortar Radar Detachment: Assigned

(2) Division Artillery monitors the activities of the direct support battalions of the three infantry brigades.

6th Battalion, 11th Artillery: Assigned 11th Infantry  
Brigade

1st Battalion, 11th Artillery: Assigned 11th Infantry  
Brigade

3d Battalion, 82d Artillery: Assigned 196th Infantry  
Brigade

b. Operations:

(1) Supporting Artillery Fires

(a) Heavy artillery support continues to be available throughout the division area of operations. Typical targets for heavy artillery are: infiltration routes, heavy enemy concentrations, base areas, acquired targets, and lucrative close-in targets.

(b) Medium artillery is weighted toward the Chu Lai and Burlington Trail areas of operation. In order to provide medium artillery support throughout the division AO, two of the medium artillery y batteries operate as split fire units. Quick fire channels to five units

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have been established with direct support battalions. One battery continues to be in direct support of the 1st Squadron, 1st Cavalry Regiment.

(c) Light artillery fire units made fifty-five moves during the period. Displacement by air was utilized as the primary method of moving light artillery units to otherwise inaccessible forward fire support bases. The provisional fourth firing battery of the direct support battalion again provided added coverage for the large brigade AOs. In order to support maneuver battalions moving to high enemy threat areas, direct support artillery from other brigades was sometimes placed under operational control of the maneuvering brigade.

(d) Artillery ammunition expenditures and per cent of observed fires by caliber for the ammunition reporting period are as follows:

<u>Caliber</u>	<u>Expenditures</u>	<u>Per Cent Observed</u>
105mm	160,395	57
155mm	77,500	46
8 inch	17,436	36
175mm	11,210	8

(2) Division Artillery provided supporting fires for the following major operations of the Americal Division:

Operation Wheeler/Wallowa	11 Nov 67 to present
Operation Burlington Trail	8 Apr 68 to present
Operation Pocahontas Forest	6 Jul 68 to 4 Aug 68
Operation Champagne Grove	4 Sep 68 to 24 Sep 68
Operation Dukes Glade	2 Oct 68 to 9 Oct 68
Operation Logan Field	7 Oct 68 to 12 Oct 68
Operation Dale Common	18 Oct 68 to 19 Oct 68
Operation Vernon Lake I	15 Oct to present

(a) Wheeler/Wallowa

1. Operation Wheeler/Wallowa continued during the reporting period with the 196th Infantry Brigade with the 2-1st Inf, 4-21st Inf, and 3-21 Inf conducting operations with the 1st Squadron, 1st Cav Reg. On the termination of Pocahontas Forest on 4 Aug, the 4-31st Inf rejoined the operation.

2. Division Artillery supported the operation as follows:

a. C/6/11 moved from Fire Support Base Buck at AT806320 to LZ Center (BT 050250) on 2 Aug and out of the Wheeler/Wallowa AO on 3 Sep. On 9 Aug C/3/82 moved out to LZ Gimlet (AT 858230) from LZ West (AT 990250). b/3/82 moved out to LZ Gimlet (AT858230) from LZ West (AT 990250). B/3/82 moved into LZ Center from the Chu Lai TAO on 3 Sep. As a result of the arrival of the 1/82d Arty in the Chu Lai TAOR, 3/82 was now able to retain all its batteries within the 196th Bde AO. C/3/82 moved back to LZ West on 18 Sep. On 1 Oct D/3/82 supported an operation at LZ Cacti (BT060473) in an AO extension



in 2d ROK Bde Ao. A platoon of C/3/82 moved out to Polar Bear II (AT 939211) on 2 Oct from LZ West. On 9 Oct D/3/82 moved to LZ Baldy, the 196th Bde HQ, located at BT 130449.

b. Reinforcing artillery moved to support operations in the AO. On 2 Aug C/3/16 moved south to LZ Ross (BT 028341), and on to LZ O'Connor (AT935243) on 8 Aug. Three howitzers moved into LZ Ross (BT 0283341) from Fat City (BT 440077) and LZ O'Connor on 12 Aug from C/3/16. On 2 Aug, 3 howitzers of A/3/16 moved to LZ West on 21 Sep from LZ O'Connor. C/3/16 (-) moved to LZ Baldy from LZ Ross on 1 Oct, returning to LZ Ross on 14 Oct.

c. GS artillery from 3/18 Arty was employed in the western portion of the AO and withdrew closer to Tam Ky as the monsoon season started. B/3/18 moved out to LZ Lurch (AT 926238) from LZ Karen on 4 Aug. On 19 Aug the battery returned to LZ Ross to remain there for the balance of the reporting period.

d. Artillery organization for combat was as follows:

3d Battalion, 82d Artillery (+)(105T) - DS 196th Infantry Brigade

3d Battalion, 16th Artillery (-)(155T) - DS 1/1 Cav and GSR 3/82d Arty

#d Battalion, 18th Artillery (-)(8"/175G) - GS

(b) Burlington Trail

1. Operation Burlington Trail continued during the period with the 1st Squadron, 1st Cavalry and 198th Infantry Brigade conducting the operation.

2. On 6 Aug D/1/14 moved to LZ Professional (BT 173076) and A/6/11 moved to LZ Pleasantville from LZ Young and Tien Phuoc, respectively. D/1/14 moved to LZ Pleasantville on 13 Aug. On 19 Aug B/1/14 moved to LZ Bowman (BT238140) from Hill 54. A/6/11 moved from LZ Pleasantville (BT 051049) to LZ Bowman (BT 238140) on 21 Aug. During the four day contact with the 1st MF VC Regiment, 2d NVA Division at BT2221 the unit contributed fires which resulted in a total of 510 NVA KIA and 57 VC KIA. On 4 Sep, Plt 1/A/3/16 returned from LZ Baldy to Hawk Hill (BT224311) as DS 1/1 Cav. B/1/14 moved to LZ Young from LZ Bowman on 19 Sep. After three days of fighting results were: 402 NVA KIA and 23 VC KIA. On 28 Sep A/1/14 moved to Tien Phuoc from LZ Chippewa (BS 485 967). C/1/14 moved to LZ Bowman (BT 238140) from LZ Gator (BS 571963) on 9 Oct, and moved to LZ Sheryl (BT302192) on 17 Oct to support a combined US - ARVN operations.

3. Reinforcing artillery of A/3/18 (2-175mm) on Hill 54 supported Burlington Trail operations. On 4 Aug this platoon moved to



LZ Young and returned to Hill 54 on 7 Sep. A Plt/B/3/16 joined the battery at Tien Phuoc on 9 Aug. Plt C/3/18 moved to Hawk Hill from Fat City (BT 436076) on 20 Sep.

4. Artillery organization for combat was as follows:

1st Battalion, 14 Artillery (+)(105T) - DS 198th Infantry Brigade

3d Battalion, 16th Artillery (-)(155T) - DS 1/1 Cav

3d Battalion, 18th Artillery (-)(8"/175G) - GS

(c) Pocahontas Forest terminated on 4 Aug. Units returned to the Wheeler/Wallowa AO.

(d) Dukes Glade was initiated on 7 Oct by 4-21st Inf to destroy enemy forces in vicinity AT 9948. It was terminated on 9 Oct.

1. D/3/82 moved to LZ Cacti (BT060473) and C/3/16(-) moved to LZ Baldy (BT 132 438) from LZ Baldy and LZ Ross, respectively on 1 Oct.

2. Artillery organization for combat was as follows:

3d Battalion, 82d Artillery (-)(105T) - DS 196th Infantry Brigade

3d Battalion, 16th Artillery (-)(155T) - Reinforce

3d Battalion, 18th Artillery (-)(8"/175G) - GS

(e) Chu Lai TAOR

1. Operations in the Chu Lai TAOR were conducted by the 198th Infantry Brigade and by the 11th Infantry Brigade when they resumed responsibility for the southern portion.

2. Division Artillery provided support as follows:

a. Direct support artillery moves frequently between several fire support bases in the TAOR in order to provide sufficient coverage and mutual support, and permit flexibility in offensive operations. On 8 Aug, B/3/82 moved from LZ O'Connor to LZ Chippewa (BS4855967) and then returned to LZ Center on 3 Sep. D/1/14, on 22 Aug, moved from Hau Duc (BT048043) to Fat City (BT 439075). A/6/11 moved from LZ Bowman to Hill 54 (BT396143) on 29 Aug and then to LZ Buff (BS539824) on 7 Sep. B/1/14 moved to Hill 54 from Fat City on 28 Aug. On 2 Sep A/1/14 moved to LZ Chippewa from LZ Buff. On 16 Sep Plt C/1/14 moved to LZ Gator (BS571963) From LZ Jane (BS 660758). B/6/11 moved to LZ Buff from FSB Cork (BS450612) on 23 Sep. D/6/11 also

moved from LZ Dottie from LZ Chevy (BS428718). On 4 Oct A/1/14 moved to LZ Chippewa from Tien Phuoc. On 9 Oct they moved to LZ Center. C/14 moved from LZ Bowman to Hill 54 on 13 Oct. D/6/11 moved back to LZ Dottie on 13 Oct from LZ Uptight (BS726857). On 23 Oct C/1/14 moved back to LZ Buff from LZ Sheryl (BT102192).

b. 1/82 Arty became operational in early August, A/1/82 at Hill 54 on 5 Aug, later sending a Plt to Fat City on 12 Aug, returning to Hill 54 on 20 Sep. B/1/82 moved into LZ Gator on 8 Aug, fully operational. Plt C/3/16 moved to Fat City on 6 Aug from Hill 54. D/1/82 became operational at LZ Dottie on 4 Aug. Plt C/3/18 (2-8") moved from Fat City on 7 Aug from LZ Dottie. 7 Sep, Plt A/3/18 (2-175G) moved to Hill 54 from LZ Young. On 23 Sep, B/1/82 returned to LZ Gator from an operation in the 11 Inf Bde AO. On 13 Oct, Plt B/1/82 moved to LZ Dottie from LZ Gator to provide illumination.

3. Artillery organization for combat was as follows;

1st Battalion, 14th Artillery (+)(105T) - DS 198th Infantry Brigade

1st Battalion, 82d Artillery (-)(155T/8"SP) - GSR 1/14 Arty

6th Battalion, 11th Artillery (-)(105T) - DS 11th Infantry Brigade

3d Battalion, 18th Artillery (-)(8"/175G) - GS

(f) Logan Field

1. Operation Logan Field was conducted from 7-12 Oct as the 1-20th Inf moved to the Batangan Peninsula.

2. D/6/11 moved to LZ uptight (BS726857) from LZ Dottie to provide direct support for the 1-20th Inf.

(g) Champagne Grove

1. From 3-24 Sep the 11th Inf Bde deployed its forces for operation Champaign Grove with three US Battalions and three ARVN battalions to take pressure off the Ha Thanh Special Forces Camp.

2. C/6/11 moved to Quang Ngai Air field (BS605719) on 4 Sep from LZ Center. On 11 Sep B/1/82 (-) moved to LZ Chevy BS 428714) from LZ Gator. On 20 Sep, B/6/11 moved to LZ Cork (BS 450612) from LZ Bronco (BS 450612)

3. Artillery organization for combat was as follows:

6th Battalion, 11th Artillery (-)(105T) - DS 11th Infantry Brigade OPCON



Battery B(-), 1st Battalion, 82d Artillery (155T) 3d Battalion, 18th Artillery (-) 917G) - GS

(h) Duc Pho AO

1. Operations in the Duc Pho AO continued throughout the reporting period.

2. Several moves were made in order to support several other smaller scale operations. On 7 Aug, D/6/11 moved to Minh Long Special Forces AO (BS458466) from Bato (BS555325). On 8 Aug, C/1/82 became operational with four guns on LZ Liz (BS75432) and two guns on LZ Thunder (BS 869318). On 9 Aug D/6/11 moved to LZ Dragon (BS730529) from Minh Long (BS 548466). B/6/11 moved to Bato Special Forces Camp (BS 581326) on 14 Aug from LZ Thunder. A/6/11 moved to LZ Dragon on 30 Aug from Hill 54 and D/6/11 moved to Ha Thanh (BS 428718) from LZ Dragon. C/6/11 moved to LZ Bronco on 10 Sep from Quang Ngai Airfield. C/1/14 moved down to LZ Jane (BS 660758) on 13 Sep. On 16 Sep A/6/11 moved to LZ Dragon, C/6/11 moved to LZ Thunder, and B/6/11 moved to LZ Bronco from LZ Buff, LZ Bronco and LZ Thunder, respectively.

3. On 28 Aug, Plt C/3/18 (2-175G) moved to LZ Dottie from LZ Dragon. They moved back to LZ Dragon on 23 Sep. Plt C/3/18 moved from Fat City to LZ Dragon to LZ Bronco with 2-8" guns. From 14-15 Oct C/1/82 (4-155) moved from LZ Liz to LZ Snoopy and back to LZ Liz.

4. Artillery organization for combat was as follows:

6th Battalion, 11th Artillery (-)(105T) - DS 11th Infantry Brigade

OPCON

Battery C, 1st Battalion, 82d Artillery (155T)

1st Battalion, 14th Artillery (-)(105T) - DS 11th Infantry Brigade.

3d Battalion, 18th Artillery (-)(8"/175G) - GS

(i) Dale Common

1. Operation Dale Common was a short operation from 18-19 Oct with 3-1st Infantry working in the Song Ve Valley (BS 6050).

2. A/6/11 moved to LZ Bulldog (BS 730528) from LZ Dragon on 18 Oct and returned on 19 Oct.

(j) Vernon Lake I

1. Vernon Lake I commenced on 25 Oct with 4-3d Inf and 3-1st Inf in the Song Ve Valley. On 28 Oct friendly units moved north between Ha Thanh and Quang Ngai Airfield. 1st Cav moved to the AO.



2. On 25 Oct D/6/11 and B/6/11 moved to LZ Dancer (BS 682402) and LZ Bulldog (BS 637552) from LZ Dottie and LZ Buff, respectively. On 28 Oct, B/1/82 (-), 4 guns, moved to Hill 10 (S 583722) from LZ Dottie and LZ Gator. On 29 Oct, B/6/11 moved to LZ Pepper (BS 496716) from LZ Bulldog. D/6/11 then moved to LZ pepper from LZ Dancer on 30 Oct.

3. Artillery organization for combat was as follows:

6th Battalion, 11th Artillery (-)(105t) - DS 11th Infantry Brigade OPCON

Battery B (-), 1st Battalion, 82d Artillery (155T)

c. The 251st and 252d Countermortar Radar Detachments are positioned on LZ East (BT 13102025) and Artillery Hill (BT51580399), respectively. The 251st's primary sector is south down the valley toward the Tien Phuoc Special Forces Camp. The 252d's primary sector is northwest into the Chu Lai rocket belt.

d. The 1st Battalion, 82d Artillery became operational on 8 August 1968. The battalion is employed along Highway# 1 in the Chu Lai area of Operations, except for Battery C which is OPCON to the 6th Battalion, 11th Artillery in the 11th Infantry Brigade AO.

e. The 6th Battalion, 56th Artillery (Hawk) became operational in the Americal AO on 2 Oct 1968. The battalion (-) is employed to defend Chu Lai Base. Battery C is located at Tan Son Nhut AFB, RVn. The battalion is OPCON to the 7th Air Force.

f. 1st Battalion, 82d Artillery: See Inclosure 1.

g. 6th Battalion, 56th Artillery: Secret, Forwarded Separately

2. SECTION 2, Lessons Learned: Commander's Observations, Evaluations, and Recommendations.

a. Personnel

Shortage of Artillery Chiefs of Section and Gunners

(a) OBSERVATION: Not enough qualified replacements for E5 Gunners and E6 Section Chiefs, MOS 13840, are forthcoming from the replacement stream.

(b) EVALUATION: The lack of qualified replacement personnel in the grade of E5 gunners and E6 Section Chiefs forces the Battery Commanders to assign personnel in the grade of Specialist Four E4, or lower, to these responsible positions without the depth of experience necessary to fully accomplish the job. This lack of experience requires the Chief of Firing Battery and the Executive Officer to supervise firing battery operations more closely than normal. This closer supervision detracts from the responsiveness of artillery fire support.

(c) RECOMMENDATIONS: That an adequate flow of qualified personnel in the grades of E5 and E6 13B40 be maintained.

b. Operations

(1) Development of an azimuth template containing indices at 0200 mil increments throughout 6400.

(a) OBSERVATION: Considerable time is consumed in constructing new firing charts with a 6400 mil capability. This is especially true when a battery displaces and survey data is initially unavailable.

(b) EVALUATION: Accuracy and time would be gained by utilizing a permanent, transparent, plastic, machined template which would contain accurate azimuth markers at 0200 mil increments around the battery center. Once data is received for a new battery position this template is placed under the current plastic grid sheet, and azimuth markers are traced on the grid sheet. The template is then removed and the grid sheet is ready for firing. One battery is currently utilizing a prefabricated template which has increased the accuracy and speed in constructing new firing charts.

(c) RECOMMENDATION: A machined or prefabricated azimuth template be manufactured for issue to all units to insure accuracy and reduce time when preparing new firing charts.

(2) Additional aiming circles for split battery operation.

(a) OBSERVATION: MTOE 6-4?? authorizes two aiming circles for each 8"/175mm battery. A common practice in a 175mm/8 inch composite battalion is to split batteries into two platoons for operations in to separate locations.



(b) EVALUATION: Two aiming circles are required in each firing location to insure accurate timely fire with a 6400 mil capability.

(c) RECOMMENDATION: Two additional aiming circles to be authorized each 8"/175mm battalion. This unit is initiating MTOE action at this time.

(3) 81mm mortars for self-illumination of fire bases.

(a) OBSERVATION: Heavy Artillery does not have the capability of self illumination in defense of the fire base. The 3d Battalion, 18th Artillery received permission, under MTOE 6-447E to use 81mm for self illumination. Under new MTOE 6-4350, firing batteries are not authorized 81mm mortars.

(b) EVALUATION: 81mm mortars are critically needed for self illumination of fire bases since they provide immediate illumination in the event of a ground attack.

(c) RECOMMENDATION: Heavy battalions to authorized on 81 mm mortar for each firing battery.

(4) Occupation of position during air-mobile operations.

(a) OBSERVATION: When an artillery battery displaces to a new position by helicopter, the unit commander has little time in which to plan and prepare for the occupation of the position. In a recent operation, a battery began arriving at a landing zone within five minutes of a combat assault by the infantry.

(b) EVALUATION: During operations into remote areas, it is essential that a firing battery be prepared to fire in support of infantry units conducting combat assaults as soon as possible. To accomplish this a firing battery advance party can go in with the infantry combat assault. In this manner the advance party can quickly organize the position. The battery can begin occupying the new position within 10 minutes of the combat assault.

(c) RECOMMENDATION: The battery advance party should accompany the infantry during a combat assault to facilitate occupation of the position by the firing battery.

(5) Artillery Air Warning

(a) OBSERVATION: Artillery maintains an air warning net to advise aircraft of artillery fires. Many times aircraft do not check for artillery Advisories. At other times aircraft entering the area will ask for a check fire of artillery so that the aircraft can proceed.

(b) EVALUATION: Air advisory service is useful only if pilots are aware of it. Whenever an artillery unit enters a new area o operations, it notifies the local aviation unit of the procedures used to obtain



artillery air advisories request for check fires by aircraft must be monitored carefully by the artillery battalion to prevent indiscriminate use. In most cases Aircraft can be rerouted, or only one mission need be check fired. There is no requirement to check fire units which will not endanger the aircraft.

(c) RECOMMENDATION: Artillery units should maintain close liaison with aviation units to explain the operation and use of artillery air warning advisories.

(6) Clearing of Registration Grids.

(a) OBSERVATION: When a firing unit first occupies a new position during air-mobile operations, difficulty is often encountered in clearing registration points.

(b) EVALUATION: Artillery should register as soon as possible after occupying a new position. However, the fluid situation on encountered in air-mobile operations often makes it difficult to clear grids. Artillery units have been successful in having its Liaison Officers clear tentative registration grids with the maneuver battalion prior to the conduct of an operation.

(c) RECOMMENDATION: Registration grids should be cleared before an operation commences.

(7) Displacement of Battalion Fire Direction Center (FDC).

(a) OBSERVATION: When an artillery battalion FDC is required to displace, it should be non-operational for the shortest possible time. Battery FDCs do not have sufficient personnel or equipment to operate as alternate Battalion FDC for any length of time.

(b) EVALUATION: In order to minimize non-operation time "Jump" FDCs have been constructed from 2 CONEX containers. A side wall of each CONEX was removed and two CONEXs were welded together. Equipment and radios were pre-positioned in the "Jump" FDC. As a result, the "Jump" FDC was ready to begin operation within minutes of arrival at a landing zone. This system also precludes having to construct bunker frames as sandbags can be stacked about the CONEX.

(c) RECOMMENDATION: "Jump" FDCs should be constructed by each artillery battalion and battery for use in air-mobile operations.

(8) Lack of Man Pack Radios in Artillery Firing Batteries.

(a) OBSERVATION: Firing batteries are not authorized any portable FM radios for use within the battery. Only vehicle mounted FM radios are available.



(b) EVALUATION: When a battery moves by helicopter, it must be capable of communicating with the helicopters by radio. To do so the advance party must have a portable radio available. At times it is possible to borrow a radio from infantry elements. However, this is not a dependable method of insuring communications.

(c) RECOMMENDATION: Each firing battery should be authorized and issued an AN/PRC-25 radio for use in air-mobile operations.

(9) FADAC data for shell, illuminating, M485.

(a) OBSERVATION: Sizeable differences exist in firing data for shell, Illuminating M485, between FADAC computed data and manual data using the FT 155-Q-4.

(b) EVALUATION: FADAC data produces consistently lower quadrant elevations. Experience shows that observers consistently call for up corrections to FADAC fired illuminating rounds. Examples are indicated below. Manual data conversely results in minimum corrections from observers.

(c) RECOMMENDATION: That FADAC tapes be reviewed in order to reconcile them with manual data.

#### ILLUMINATION DATA - MANUAL VS FADAC

		<u>Manual</u>	<u>FADAC</u>
Chg 6, Rg 8559m AZ 4898	Df	0902	0899
	Ti	26.2	27.7
	QE	485	462
Chg 5, Rg 6562m AZ 4928	Df	0872	0869
	Ti	21.7	23.1
	QE	501	467
Chg 4, Rg 5571m AZ 4951	Df	0849	0854
	Ti	20.7	34.4
	QE	555	549
Chg 3, Rg 3606m AZ 5035	Df	0773	0765
	Ti	16.1	14.1
	QE	516	565

(10) FADAC data for Selected Ammunition.

(a) OBSERVATION: Significant differences exist in firing data for Shells, Selected M449, 449E1, and 449E2 between FADAC computed data and manual data using the FT 155-ADD-A-1 with Charges 2, 4, and 5 or FT 155-ADD-C-1 (provisional).

(b) EVALUATION: The examples show the differences in data for three different shell types. Data was developed using current GFT settings and met corrections. Past experience gathered during demonstration and combat firing shows that FADAC data is the better of the two, producing fewer duds.

SELECTED MUNITIONS - MANUAL VS FADAC

Battery A, Grid 300300, Alt 22, Rg 7630, Ch 5.

Manual

449

FADAC

Df 2255  
Ti 25.7  
QE 473

2259  
26.0  
445

Max Ord. 1050.32

449 E-1

Df 2255  
Ti 25.7  
QE 475

2259  
25.7  
440

Max Ord. 1027.13

449 A-1

Df 2255  
Ti 25.4  
QE 447

2259  
25.7  
436

Statistical data is being compiled on the 105mm and 8 inch Howitzer. None is available at this time.

(c) RECOMMENDATION: That differences be reviewed in order to develop manual data producing desired results. In this regard it should be noted that manual data computed using FT 155-ADD-B-1, designed for the M109 self-propelled Howitzer, does check with FADAC data for M114 Howitzer.

(11) Gunnery Safety SOP.

(a) OBSERVATION: The many safety factors to be considered in firing artillery in Vietnam requires that all supervisory personnel be constantly aware of these considerations.

(b) EVALUATION: In order for artillery supervisory personnel to have ready access to safety data, a pocket SOP, which is attached as inclosure 2, provides guidance to Commanders, Staff Officers, Fire Direction Officers, Liaison Officers, Forward Observers, and Section Chiefs. Areas covered include FDC checks, Firing Battery checks, and safety criteria to be followed by FOs and LNOs.

(c) RECOMMENDATION: None

c. Training: Omitted



d. Intelligence: Omitted.

e. Logistics:

(1) Repair parts for M110 and M107 artillery weapons.

(a) OBSERVATION: The M110 and M107 are frequently inoperative as a result of an inadequate supply of a few critical repair parts. Examples of these parts are as follows:

<u>Item</u>	<u>FSN</u>
Carrier, Traversing Mechanism	2520-733-8163
Differential Assembly	2520-937-3133
Valve, Solenoid	2520-736-0242
Switch, Oil Pressure	2520-736-0233
Valve, Safety Relief	4820-719-6348
Tube, Assembly, Metal	2590-955-5498
Hydraulic Elevating Motor	2520-733-8144
Cylinder	2520-730-6645
Cylinder Assembly	1025-863-7786
Screw, Cap Hex Head	5305-655-9279
Switch, Sensitive	5930-699-9085
Pump, Rotary	4320-745-7865
Motor, DC	6105-513-9631
Pump, Rotary, Power Driven	2520-860-0557
Drive Assembly, Torque Lock	2520-909-2460

(b) EVALUATION: A shortage of repair parts has resulted in several battalion weapons being inoperative for periods of 3 days to 3 weeks.

(c) RECOMMENDATION: That continuing emphasis be placed on bringing the repair part stock level at direct support and general support units up to the authorized level of stockage.

(2) M-578 for each firing battery of heavy SP battalions.

(a) OBSERVATION: A mobile heavy lifting capability combined with a recovery capability is vital to a heavy SP artillery battalion in combat. The lift capability is required to assist in the frequent tube changes of the 175mm Gun, for two vehicles with a lifting capability are required for each tube change. An M-578 is required to recover M110/M107 vehicles which become disabled during road marches. At the present time the flank batteries in the battalion are separated by approximately 120 KM. This considerable separation distance, periodic adverse road conditions, and virtual isolation of those batteries has required an M-578 to be assigned to each battery. The remaining firing battery is located a short distance from battalion headquarters, and therefore, this unit is supported by service battery's M-578 or by the 588th DS Company. A recent change in the battalion's TOE (MTOE 6-435G, dtd 1 July 1968) authorizes only the M-578 in service battery. This one M-578 has proven to be inadequate to support the continuing requirements for 175mm Gun tube changes and the recovery of disabled guns. An MTOE is being prepared.