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IN REPLY REFER TO

AD 503811

AGAM-P (M) (1 Aug 69) FOR OT UT 692236 5 August 1969

SUBJECT: Operational Report - Lessons Learned, Headquarters, 5th Battalion, 2d Artillery, Period Ending 30 April 1969 (U)

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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.

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Kenneth G. Wickham

KENNETH G. WICKHAM
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  1st Battalion, 44th Artillery

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DEPARTMENT OF THE ARMY
Headquarters, 5th Battalion (AW)(SP) 2d Artillery
APO San Francisco 96266

AVFB-FAO-

7 May 1969

SUBJECT: Operational Report of the 5th Battalion (AW)(SP) 2d Artillery for the Period Ending 30 April 1969, RCS CSFOR-65 (R1) (U)

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

a. Administration/Personnel:

(1) During this reporting period personnel replacements have been received in sufficient numbers to adequately fulfill operational requirements. However, MOS 16F (Light ADA Crewman), MOS 17E (Artillery Searchlight Crewman), MOS 17T20 (TAERS Clerk), 76A10 (Supply Clerk), and 76Y40 (Supply Sergeant) continue to be critical shortage MOS's. Many of the replacements received during this period have MOS's which cannot be utilized by the battalion due to the lack of position vacancies or authorizations. These personnel must receive considerable OJT prior to assignment into required position vacancies.

(2) The following awards were presented to assigned and attached personnel:

AWARDS	PERSONNEL
Silver Star	1
Bronze Star "V"	6
Bronze Star	41
Air Medal	9
Army Commendation Medal	47
Purple Heart	54
Good Conduct Medal	37

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(3) The Battalion Headquarters was engaged in normal operations during the reporting period with continuing emphasis placed on the improvement of the perimeter defense of the headquarters compound.

(4) During the period 20 January 1969 - 12 February 1969, the Vulcan Combat Team (VCT) was attached to B Battery, 5th Battalion (AW)(SP) 2d Artillery, in support of automatic weapons missions in the 25th Infantry Division's TAOR. On 12 February 1969, the VCT returned to Battalion Headquarters where it was placed OPCON to Bien Hoa Tactical Area Command for the defense of the Bien Hoa - Long Binh Complex during the TET Offensive period. On 24 March 1969, the VCT was deployed to the 9th Infantry Division TAOR attached to C Battery, 5th Battalion (AW)(SP) 2d Artillery, and supported missions in the Delta until 20 April 1969, at which time the VCT returned to Battalion Headquarters to process equipment for deployment to CONUS.

(5) There were no administrative or tactical movements of Headquarters, 5th Battalion (AW)(SP) 2d Artillery during this reporting period.

(6) Battalion personnel statistics as of 30 April 1969 were:

(a) Current Strength:

	AUTHORIZED			ASSIGNED		
	OFF	WO	EM	OFF	WO	EM
5th Bn (AW)(SP) 2d Arty	37	3	652	44	3	611
D Btry (MG) 71st Arty	2	0	140	3	0	116
I Btry (SLT) 29th Arty	7	0	143	5	0	117
VCT (Provisional)	2	0	27	2	0	27
	48	3	962	54	3	871

(b) Gains and Losses: 1 Feb 69 - 30 Apr 69:

	GAINS	LOSSES
5th Bn (AW)(SP) 2d Arty	134	142
D Btry (MG) 71st Arty	36	36
I Btry (SLT) 29th Arty	20	37
VCT (Provisional)	0	4
	190	219

(c) Casualties: 1 Feb 69 - 30 Apr 69:

TYPE	NUMBER
Died of Battle Wounds	0
KIA	2
WIA	38
MIA	0
Non Battle Deaths	2

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(d) R&R Experience:

LOCATION	FEB	MAR	APR
Australia	16	18	16
Bangkok	3	12	10
Hawaii	9	5	6
Hong Kong	2	4	1
Manila	0	1	1
Penang	0	0	0
Singapore	0	1	2
Taipei	2	1	5
Tokyo	1	2	3
Kuala Lumpur	0	0	0
In-Country	15	15	15
	48	59	59

(7) Current organizational structure of the 5th Battalion (AW)(SP) 2d Artillery is at Inclosure 1.

b. Operations:

(1) General: This reporting period was characterised by the repositioning of automatic weapons and searchlight assets consistent with the changing operational situation and the increasing exploitation of the M42A1 indirect fire capabilities. The battalion's overall combat capability continued to be enhanced by the attachment and deployment of the Vulcan Combat Team (VCT). The battalion's flexibility and maintenance support capabilities continue to be aggravated by the almost total commitment of General Support assets in response to demands for automatic weapons in the Saigon and Bien Hoa areas. Continuing emphasis was placed on developing procedures and formulizing doctrine directed at improving the indirect fire accuracy of the M42A1.

(2) Unit Attachments and Missions:

(a) During this reporting period, the Battalion remained assigned to US Army Vietnam and attached to II Field Force Vietnam with operational control of the Battalion's assets exercised by II Field Force Vietnam Artillery.

(b) Batteries A, B, and C remained in attachment for OPCON and logistics to the 1st, 25th and 9th Infantry Divisions respectively.

(c) Battery D remained in General Support of II Field Force Vietnam Artillery, with elements further attached for OPCON and logistics as follows: Two

sections (4 M42A1's) attached to Royal Thai Army Volunteer Force; three sections (6 M42A1's) attached to the 54th Artillery Group; two sections (4 M42A1's) attached to the 199th Light Infantry Brigade; and one section (2 M42A1's) supporting missions for II Field Force Vietnam Artillery.

(d) Battery D (MC) 71st Artillery remained in General Support of II Field Force Artillery and attached to the 5th Battalion (AW)(SP) 2d Artillery with firing elements further attached for OPCON and logistical support as follows: two sections (8 M55's) attached to 23rd Artillery Group; one section each (4 M55's) attached to 54th Artillery Group and the 25th Infantry Division; one half section each (2 M55's) attached to the 199th Light Infantry Brigade and the 9th Infantry Division; one half section (2 M55's) remained in Direct Support of Headquarters, II Field Force Vietnam and one half section (2 M55's) in battery maintenance with on-order missions. Headquarters, Battery D (MC) 71st Artillery remains colocated with Headquarters, 5th Battalion (AW)(SP) 2d Artillery.

(e) Battery I (SLT) 29th Artillery remains attached to the 5th Battalion (AW)(SP) 2d Artillery and further attached for OPCON and logistics as follows: First and Third Platoon attached to the 1st and 25th Infantry Divisions respectively; the Second Platoon remained in General Support of II Field Force Vietnam with elements OPCON to the 199th Light Infantry Brigade, 54th Artillery Group, 23rd Artillery Group, 36th ARVN Rangers, Bien Hoa Tactical Area Command, and the Capital Military Assistance Command. The Battery Headquarters remains colocated with Headquarters, 5th Battalion (AW)(SP) 2d Artillery.

(f) Current deployment and individual unit missions of the 5th Battalion (AW)(SP) 2d Artillery are listed at Inclosure 2.

(3) Automatic Weapons and Searchlight deployments are portrayed graphically at Inclosure 3.

(4) Significant Combat Operations:

(a) 6 February 1969, Binh Phouc - On 6 February 1969, intelligence sources indicated that an attack was planned on the Binh Phouc Compound. With this knowledge all guards and perimeter security forces were instructed to fire on any movement at any time during the night. At 0230H, the crew of M42 Duster #222 of C Battery, 5th Battalion (AW)(SP) 2d Artillery, observed movement approximately 200 meters to their front. The section chief immediately relayed this information to the TOC. The M42 crew was directed to fire on the observed movement and expended approximately 60 rounds of 40mm. Immediately after this action, all enemy ground movement around Binh Phouc perimeter ceased. The alert Duster crew was credited with detecting and stopping the ground probe.

against the Binh Phouc Compound.

(b) 23 February 1969, FSPB Concord - At 230615H February 1969, crews of the 1st and 4th squads, 6th section of D Battery, 71st Artillery, observed rocket flashes approximately 1800 meters in front of their position on the perimeter of FSPB Concord. The observations along with a request for permission to fire was immediately relayed to the TOC of C/1/27 Artillery. When permission to fire into the area where the flashes were observed was granted, the two squads engaged with 1600 rounds of 50 caliber ammunition. The rocket flashes stopped immediately after the Quad 50's opened fire. A sweep of the area resulted in fifteen (15) 122mm rockets captured in firing position and 32 VC KIA. The AW Commanders estimates 20 VC were killed by Quad 50 fire and it is probable that the Quad firing prevented the enemy from launching the 15 rockets at the Long Binh Complex.

(c) 24 February 1969, Dau Tieng - At approximately 241230H February 1969, Dau Tieng Base Camp was under a heavy rocket attack, while an enemy ground assult was launched against the eastern perimeter. Four M42A1's from B Battery, 5th Battalion (AW)(SP) 2d Artillery, moved to position on the East perimeter to engage the enemy force that had already penetrated the perimeter and to deliver counter-rocket fires. Dusters #241 and #111 engaged the enemy force inside the perimeter with M60's and M16's, while Duster #112 began delivering a high volume of 40mm counter-rocket fire. During this same period of time, Duster #222 received a heavy volume of small arms fire from the nearby village and received permission from the 3rd Infantry Brigade TOC to engage the small arms fire with selective 40mm and M60 fire. The enemy attack was defeated at approximately 0100H, after the Dusters had fired a total of 835 rounds of 40mm and 15,000 rounds of 7.62mm. Enemy losses during this engagement amounted to 22 VC KIA of which 15 were estimated to have been killed by the M42A1's.

(d) 24 February 1969, Can Giuoc - At approximately 240230H February 1969, Can Giuoc began receiving a heavy volume of recoiless rifle fire and 107mm rocket fire. Duster #221 from C Battery, 5th Battalion (AW)(SP) 2d Artillery, immediately returned fire with 40mm and caused one very large explosion in the area where the rocket flashes had been observed. After delivering 361 rounds of 40mm into the target area, the enemy stand of attack ceased.

(e) 24 February 1969, Xuan Loc - At approximately 242100H February 1969, 150 NVA troops dressed in ARVN Ranger uniforms launched a ground attack against Husky Compound. The attack was launched without rocket or mortar preparation fires, apparently in an effort to maintain the element of surprise. However, as soon as the enemy moved to advance on the perimeter, the 1st and 2nd squads of the 5th section, D Battery, 71st Artillery, immediately engaged the attacking force with Quad 50 machinegun fire. During the course of the brief but violent exchange, the Quads delivered 8,000 rounds of 50 caliber into the attacking force, breaking up the enemy attack and forcing the NVA to withdraw. The perimeter commander credited the Quads with preventing the enemy from breaching the perimeter, and initial estimates indicated that 50 NVA were killed by Quad 50 caliber fire.

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(f) 23 February 1969, Long Binh - At approximately 230300H February 1969, Searchlight #211 from Battery I, 29th Artillery, received notification on the jeep radio that the enemy was attempting to breach the southern perimeter of Long Binh Post. Searchlight #211 immediately moved to the threatened area to provide illumination for the defending forces and was soon brought under heavy mortar and automatic weapons fire from the VC force. Soon after the searchlight arrived on the scene, the engagement reached its greatest intensity, during which time the two crewmen were engaged in evacuating the wounded from the area. Then the searchlight crewmen took up positions in an unmanned bunker and began to return fire with their M60, M16's, and M79. Results indicated that the crew killed 10 VC (AW Commanders unofficial estimate).

(g) 24 February, 1969, Can Giuoc - At approximately 242330H February 1969, the Duster crews of C Battery, 5th Battalion (AW)(SP) 2d Artillery, at perimeter positions spotted numerous rocket flashes. The crews immediately returned 40mm counter-rocket fire into the area where the flashes had been spotted, and the enemy launch positions were silenced before the first rocket from the initial volley impacted near Can Giuoc. The Dusters delivered 140 rounds of 40mm into the target area and caused one large secondary explosion. The alert Duster crews were credited with stopping the rocket attack against Can Giuoc and accounted for 3 VC KIA.

(h) 25 February 1969, Ben Luc - At approximately 251900H February 1969, a VC force was spotted near Ben Luc. A request for fire was relayed to the artillery FDC at Ben Luc, which in turn directed the Dusters on the perimeter to fire into the target area. The Dusters delivered 600 rounds 40mm into the enemy location which resulted in 3 VC KIA.

(i) 25 February 1969, Long Binh - At approximately 250730H February 1969, a Duster section from D Battery, 5th Battalion (AW)(SP) 2d Artillery, supporting a RTAVF sweep of a VC bunker complex near the southern perimeter of Long Binh Post, were successful in finding the entrance to the bunker complex and captured 4 VC who were hiding in well-concealed positions. After securing the POW's, the personnel continued to clear the remaining bunkers with M16's, hand grenades, and 40mm Duster fire. The Dusters were credited with 5 VC KIA (confirmed), 4 POW's (confirmed), and capturing numerous enemy weapons and equipment.

(j) 26 February 1969, Cu Chi - During the evening of 26 February 1969, a large VC force penetrated the northwest perimeter of Cu Chi base camp. Two Dusters from B Battery, 5th Battalion (AW)(SP) 2d Artillery, and two Quads from D Battery, 71st Artillery, moved to the threatened area and engaged the enemy force near the perimeter. The Dusters fired 895 rounds of 40mm and the Quads fired 800 rounds of 50 caliber, closing the engagement. Results credit the Dusters with 4 VC KIA(confirmed) and the Quads with 4 VC KIA (confirmed).

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(l) 2 March 1969, My Tho - At approximately 020100H March 1969, My Tho received 20 rounds of 82mm mortar fire. Duster section 14 of C Battery, 5th Battalion (AW)(SP) 2d Artillery immediately returned fire with 190 rounds of 40mm. The heavy volume of 40mm fire silenced the mortars. The Infantry commander credited the Dusters with stopping the mortar attack against My Tho, and the 14 Duster section was credited with 1 VC KIA.

(m) 9 March 1969, Song Be - At approximately 090130H March 1969, a large enemy force attempted to overrun a Special Forces camp located on the side of a mountain approximately 2 kilometers northeast of Song Be Base Camp. Responding to this attack, 3 M55 Quad 50 machinegun squads of D Battery, 71st Artillery, located on the base camp perimeter engaged the enemy force with a total of 3200 rounds of 50 caliber and repelled the initial thrust. After spooky, and LFT's arrived on station, the enemy withdrew from the area. The Quad 50 squads were credited with 20 VC KIA.

(n) 11 March 1969, Cu Chi - Dau Tieng Convoy Ambush - At approximately 111230H March 1969, two Quad 50 machinegun squads from D Battery, 71st Artillery, and one section of Dusters, from B Battery, 5th Battalion (AW)(SP) 2d Artillery, were providing security for a convoy traveling from Cu Chi to Dau Tieng when the convoy was ambushed by an estimated VC battalion. The first Quad 50 passed the ambush point before the VC force initiated the attack, but the second Quad met the main thrust of the enemy attack. This Quad 50 pulled off to the side of the road and engaged the enemy force while two Dusters moved to the ambush site and took up firing positions. Notification of the ambush was relayed to two more Dusters at an RRF position in the vicinity of the ambush, and these Dusters were soon on location providing additional supporting fire. During the engagement, the four Dusters expended a total of 1,027 rounds of 40mm, 4300 rounds of 7.62mm, 126 rounds of M79, while the two Quads fired an undetermined amount of 50 caliber. Results indicated 76 VC KIA, 40 of which will be credited to the AW's of the 5th Battalion (AW)(SP) 2d Artillery.

(o) 15 March 1969, Dong Tam - At approximately 150200H March 1969, the 13 section of C Battery, 5th Battalion (AW)(SP) 2d Artillery, engaged an unknown size VC force that had opened fire with automatic weapons and RPG-2 fire from the west side of a canal which borders Dong Tam Post. The attack terminated shortly thereafter. Results were 2 VC KIA (confirmed).

(p) 17 March 1969, D/2/16 Inf NDP - At approximately 171700H March 1969, the 13 section of Dusters from A Battery, 5th Battalion (AW)(SP) 2d Artillery, were on a sweep with elements of the 2/16 Inf in the area adjacent to the D/2/16 Inf NDP. Dusters 131 and 132, which were on the sweep with the Infantry, sighted three VC running across a field into a wooded area. Advancing with the Infantry to within 100 meters of the area, a complex consisting of three bunkers was sighted. Duster 132 fired 83 rounds of 40mm into the bunkers, destroying them. Elements of the 2/16 Inf conducted a sweep of the area on 18 March 1969,

and found one VC within the destroyed bunker complex. Track 132 was credited with 1 VC KIA.

(q) 22 March 1969, Song Be - At approximately 220200H March 1969, Song Be received an unknown number of 82mm mortar rounds. While the mortars were still impacting, three M55 Quad 50 machinegun squads of D Battery, 71st Artillery engaged the active mortar position, immediately silencing it. The Quad 50 squads were credited with 5 VC KIA (confirmed).

(r) 25 March 1969, Cu Chi - Tay Ninh Convoy - At approximately 251030H March 1969, an estimated 3 companies of VC ambushed the Cu Chi - Tay Ninh convoy 3 miles northwest of Trang Bang from positions located on both sides of the road. Two Quad 50 escort vehicles from D Battery, 71st Artillery, immediately engaged the ambush force with a heavy volume of 50 caliber fire and prevented the enemy force from advancing on the convoy. During the engagement, which continued until 1230H, 2200 rounds of 7.62mm, 36 rounds of M79, and 8,500 rounds of 50 caliber were fired by the Quad 50 squads. The convoy commander credited the Quads with preventing the convoy from being overrun and initial estimates indicate that the Quads killed 50 VC.

(s) 28 March 1969, Cu Chi - Tay Ninh Convoy - The 3/4 Cav was on an outpost position near XT 338459 when at approximately 1020H they come under enemy fire. A convoy escorted by a section of M42's from B Battery, 5th Battalion (AW)(SP) 2d Artillery, and a Quad 50 section from D Battery, 71st Artillery, approached the 3/4 Cav outpost. Immediately one M42 and Quad 50 section assisted the 3/4 Cav in securing the road in order to allow the convoy to pass. The remaining M42 continued with the convoy until it was out of danger and then returned to increase the firepower of the 5/2 elements. The M42's and Quad 50's accompanied the 3/4 Cav elements on a recon by fire and expended 12,000 rounds 50 caliber, 363 rounds of 40mm, 2400 rounds of 7.62mm, and 62 rounds of M79 during the contact which lasted 3 hours. AW Commanders estimated 20 VC KIA by M42's and 20 VC KIA by Quad 50's.

(t) 2 April 1969, Tan An - At approximately 021400H April 1969, Vulcan systems 1 and 4 were conducting a sweep with Infantry 6 kilometers ESE of Tan An when contact was made with an estimated VC platoon. During this initial contact, one VC was KIA by the Vulcans and the enemy platoon immediately broke contact. As the sweep continued, another VC platoon was engaged at 1530H and the Vulcans were credited with another VC KIA. After the VC platoon broke contact, the sweep elements continued in close pursuit and at 1630H the VC platoon was engaged once again, resulting in three (3) VC KIA. During these three separate engagements the Vulcan systems expended a total of 2150 rounds of 20mm and were credited with 5 VC KIA (confirmed).

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(u) 11 April 1969, Ben Tre - At approximately 111134H April 1969, Vulcan systems 3 and 4 and the VCT command APC were making a river crossing 3 kilometers east of Ben Tre when they were brought under RPG fire from the shore line. Of the 4 rounds that were fire, one struck the barge and one hit the command APC causing minor damage but killing one US and wounding 3 others. The Vulcans accompaning the command APC immediately opened fire and silenced the RPG position. During the engagement, 400 rounds of 20mm were expended and initial estimates indicated 3 VC KIA.

(v) 14 April 1969, Long Binh - 142135H April 1969, the flash observation tower and the northern perimeter guard posts at Duster Compound sighted approximately nine (9) enemy rocket launches 4½ kilometers north of the compound. Personnel in the tower transmitted the azimuth to the sighting to the Flash Ranging Control of the Bien Hoa Tactical Area Command while the Duster crews, who had also witnessed the rocket sighting, stood by to receive firing data from the Bn FDC. At 2140H, Bien Hoa Tactical Area Command transmitted coordinates of the launch site with all necessary clearances, and at 2143H the Duster's had fired the first 50 round burst at the launch position. Reports from Bien Hoa Tactical Area Command FSCE and also from Duster flash tower confirmed that the 40mm fire was first on target and that the observed impacts of the 40mm fire were exactly on target. Bien Hoa Tactical Area Command requested additional 40mm fire and an additional 100 rounds were fired on the same grid. The speed, accuracy and volume of fire with which the M42A1's were able to respond to this counter rocket fire mission clearly demonstrates the effectiveness of the weapon in the indirect fire role and the desireability of incorporating 40mm fires in all artillery attacks against acquired targets.

(w) 25 April 1969, Lai Khe - At approximately 251345H April 1969, Duster section 21 of A/5/2 Arty was in support of an infantry sweep in the area of the East perimeter of Lai Khe. The Dusters took up positions on high ground inside the perimeter where they could obtain good fields of fire. The Infantry flushed two VC from their concealed positions, and the Dusters were called upon to fire. Duster A211 fired 45 rounds of 40mm, and the Duster was credited with one VC KIA (confirmed).

(x) 28 April 1969, An Loc - At approximately 281130H April 1969, a convoy escorted by Duster section 22 of A/5/2 Arty traveling from checkpoint 5 to An Loc was ambushed in the vicinity of XT 765735. The convoy received 8 to 10 rounds of RPG fire from the West side of the road and small arms fire from the East side. Duster section 22 returned fire with 154 rounds of 40mm ammunition. Results of the engagement were 4 US WIA, 2 US KIA, and 11 NVA KIA (confirmed), of which the Dusters were credited with six (6) (Unofficial).

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(y) 29 April 1969, Tay Ninh - Cu Chi Convoy Ambush - At approximately 291530H April 1969, a convoy returning from Tay Ninh to Cu Chi was ambushed in the vicinity of Trang Bang (XT 507191) by an estimated VC company. The enemy attacked by fire from both sides of the road. M55 quads 22, 23, and 54, from D Battery, 71st Artillery, took up positions on both sides of the road and returned fire allowing the convoy to continue past the kill zone. The quads expended 13,300 rounds of 50 caliber, 150 rounds of 7.62mm, and 55 rounds of M79 ammunition. Initial estimates indicated that the quads killed 25 VC (AW Commanders estimate).

(5) Efforts to Improve the Accuracy of M42A1 Indirect Fire - During the reporting period the battalion headquarters developed M42A1 40mm firing tables based on 4 months of AN/MPQ-4A radar sightings at all ranges and an average MV derived from ammunition data cards and chronograph readings. Using the firing data contained in the new 5/2 Arty firing tables, recent M42A1 indirect fire missions have been characterized by considerably better first round accuracies. The effectiveness of the M42A1 as an indirect fire artillery weapon has therefore been measurably enhanced. (A copy of the 5th Battalion (AW)(SP), 2nd Artillery 40mm Firing Tables is at inclosure 4).

c. Logistics/Maintenance:

(1) Maintenance Problems: The overmileage status of the battalion's M42A1 Duster fleet was somewhat improved by the replacement of 17 overmileage vehicles during the reporting period. The impact of this was immediately reflected in the reduced deadline rate for M42's. High road mileage and operation under extreme climatic and terrain conditions however, continue to be the major contributing factors in M42A1 mechanical failures, and the percentage of overmileage M42's has already climbed to 25%, as of the close of this reporting period. Reports indicate that Closed Loop replacement M42's are currently arriving in-country in sufficient quantity to replace the 16 overmileage vehicles now on hand and it is expected that this will be accomplished by mid-May.

(2) Repair Parts Supply: There has been a significant improvement in this area during the reporting period as the supply system continues to catch up to the demand experience generated in the preceding 6 months. Direct Support Unit ASL's are much improved both in the number of lines and quantities authorized for stockage and actual on hand balances. This improvement has resulted in corresponding improvements in the battery PLL's, and a sharp reduction in the number of instances in which parts had to be obtained from retrograde tracks through the "RED BALL EXPRESS" procedure.

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During this period it was noted that the processing and retrograde of M42's out of country was far more rapid than in the past and therefore this source of repair parts has become very limited and of declining importance.

(3) Summary of Overall Maintenance Posture:

(a) Close surveillance of unit maintenance activities through the OMSI/CMMI programs of IIFFORCEV and the Battalion continued through this reporting period. All seven batteries were inspected by both the battalion and the IIFFORCEV Teams and all batteries again received "Satisfactory" ratings (based on a SAT./UNSAT. rating scale). All reports reflect an upward trend in maintenance posture and many scores are much higher than those of 6 to 9 months ago.

(b) Maintenance personnel shortages, prevalent for the past 3 to 4 months, have been resolved and all units should be very near TOE strength by mid-May 1969.

(c) In summary, the overall maintenance posture of the Battalion is greatly improved and with the arrival of the forthcoming rebuilt Dusters further improvement can be expected.

(4) Total Mileage Traveled for the Months of January, February, and March for each Battery:

Headquarters Battery		¼ ton	3/4 ton	2½ ton	5 ton	M42A1	WR
January		10,598	3,264	6,925	539	-----	--
February		10,581	3,050	6,166	341	-----	--
March		7,353	4,688	4,280	156	-----	--
	TOTAL:	28,532	11,002	17,371	1036		
Battery A							
January		6,804	1,321	6,635	825	11,148	435
February		5,085	1,495	5,210	530	13,847	286
March		6,164	1,452	5,289	0	13,362	515
	TOTAL:	18,053	4,268	17,134	1,355	38,357	1,236
Battery B							
January		3,185	31	3,357	1,258	5,384	42
February		3,623	448	2,960	1,190	3,896	42
March		4,072	543	3,097	537	3,890	0
	TOTAL:	10,880	1,022	9,414	2,985	13,170	84

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Battery C		½ ton	1/4 ton	2½ ton	5 ton	M42A1	Wit
January		5,011	259	5,037	454	1,182	
February		5,967	325	2,438	1,132	1,105	
March		5,954	1,793	2,404	1,555	876	
	TOTAL:	16,932	2,377	9,879	3,141	3,163	
Battery D							
January		4,035	2,083	3,737	30	2,664	150
February		3,997	2,463	4,592	270	1,300	528
March		4,418	1,700	5,701	444	1,315	90
	TOTAL:	12,450	6,246	14,030	744	5,279	768
D/71						M55	
January		200	1,700	400		14,103	
February		---	-----	456		8,354	
March		780	623	266		12,130	
	TOTAL:	980	2,323	1,122		34,587	
I/29							
January		7,166	4,770	888			
February		14,854	4,321	725			
March		8,649	2,108	656			
	TOTAL:	30,669	11,199	2,269			

2. (C) Section 2: Lessons Learned: Commanders Observations, Evaluations and Recommendations

a. Personnel: None

b. Operations:

(1) Construction of M42A1 Firing Positions

(a) OBSERVATION: On two recent occasions, M42A1 crews firing missions requiring low quadrant elevations experienced premature 40mm detonations approximately 10 meters from the tubes. Investigation of these two separate occurances has revealed that the detonations were caused by the 40mm round striking debris from sandbags which had been blown apart by the muzzle blast and thrown up in front of the firing position.

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(b) EVALUATION: Because sandbags deteriorate rapidly under constant exposure to the elements, they should not be used as surface coverings around the upper layer of M42A1 parapets. Sandbags which have deteriorated are easily blown apart by the M42A1 muzzle blast, consequently creating a serious debris hazard which can cause premature detonations of sensitive point detonating 40mm ammunition.

(c) RECOMMENDATION: M42A1 firing positions should be constructed in such a manner that the top surface consists of heavy barrier material (wood, PSP, 40mm ammo cans, etc.) that is firmly secured to withstand the muzzle blast at minimum elevations.

(2) Employment of the Starlight Scope in Conjunction with 23" Xenon Searchlight Pink Filter Lens

(a) OBSERVATION: Starlight scopes used in conjunction with the pink filter lens of the 23" Xenon Searchlight optimizes the effectiveness of the infrared light mode.

(b) EVALUATION: The recently developed pink filter lens for 23" Xenon Searchlight produces higher frequency light emission in the infrared mode which greatly enhances starlight scope capabilities and allows for optimum battlefield illumination without disclosing friendly positions.

(c) RECOMMENDATIONS: When possible, supported units should employ starlight scopes or make them available to searchlight crews to optimize the effectiveness of infrared light and provide magnification of elements on the battlefield. (Guidelines for the employment of starlight scopes in conjunction with the 23" Xenon Searchlight pink filter lens are contained in the "Searchlight Information Sheet" at Inclosure 5.)

(3) Minimizing Casualties in M42A1 Mining Incidents

(a) OBSERVATION: Casualties have been produced by unsecured hatch doors hitting M42A1 crew members as a result of mine detonations.

(b) EVALUATION: Recent months have seen an increase in mining incidents involving M42A1's, and although few casualties and slight structural damage to the M42A1 have been experienced, in those cases where drivers and commanders compartment hatches were not secured injuries were sustained when the hatches slammed shut.

(c) RECOMMENDATION: To minimize personnel injuries resulting from mining incidents, all hatches should be firmly secured with webbing, cable or a suitable substitude when preparing the M42A1 for a combat mission.

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(4) Vulcan Reload Period and Supplementary Armament

(a) OBSERVATION: The 3-6 minute reload period makes the Vulcan completely vulnerable to enemy attack after expenditure of ammunition in the system.

(b) EVALUATION: The current Vulcan TOE does not provide for supplementary armament systems (i.e. M60 machineguns and M79) which makes the Vulcan totally dependent on the primary 20mm gun system. The excessive reload time of 3-6 minutes after initial expenditure of 20mm ammunition in the system therefore renders the Vulcan completely defenseless during that period, which seriously limits its survivability during prolonged combat engagements.

(c) RECOMMENDATION: Vulcans must always be employed in pairs, maintain constant visual contact during combat operations, and develop fire discipline doctrine that will insure that one system has sufficient ammunition to provide defensive fires while the sister system is reloading. Additionally, provisions should be incorporated into the current Vulcan TOE to authorize the M60 machinegun and the M79 as supplementary armament systems.

(5) Vulcan Indirect Fire Direction Equipment:

(a) OBSERVATION: Although accurate indirect fire tables have been developed for the Vulcan system, the current TOE does not authorize an aiming circle to accurately lay the weapon for indirect fire missions.

(b) EVALUATION: The current Vulcan TOE authorizes only the compass with which to lay the Vulcan for indirect fire. The inaccuracies inherent in the compass method of laying the weapon introduces a large margin of error which is unacceptable for the efficient engagement of targets with indirect fire on the Vietnam battlefield. To achieve the required degree of indirect fire accuracy the Vulcan must be layed and oriented with an aiming circle.

(c) RECOMMENDATION: The Vulcan TOE should be modified to provide for one aiming circle per Vulcan platoon.

(6) Vulcan Muzzle Clamp:

(a) OBSERVATION: The Vulcan Air Defense muzzle clamp has proven more effective in the engagement of surface targets than the 5 mil muzzle clamp in that the latter creates too consentrated a shot pattern in the target area.

(b) EVALUATION: The Vulcan gun system has two muzzle clamp options: a 5 mil clamp which produces an extremely tight dispersion pattern; and the Air Defense clamp which provides for an appreciable expansion of the shot pattern in the target area. Experience in actual combat engagements in Vietnam has shown that the 5 mil clamp produces "over kill" and limits the total effectiveness of the weapon. The Air Defense clamp, with its expanded shot pattern,

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has proven most effective in the attack of surface targets on the Vietnam battlefield.

(c) RECOMMENDATION: Vulcans employed in ground support missions should be fitted with the Air Defense muzzle clamp.

(7) Probable Errors for M42A1 (40mm) and M55 Quad 50 caliber Indirect Fire:

(a) OBSERVATION: There is currently no gunnery data available to determine range and azimuth probable errors for 40mm or Quad 50 caliber indirect fire.

(b) EVALUATION: Recent months have witnessed the increasing explortation of the M42A1's and M55's indirect fire capabilities, however many supported commanders are reluctant to incorporate M42A1 and Quad 50 caliber fires into their fire support plans because there is presently no gunnery data available to determine probable errors in range and azimuth. The delivery of indirect fires in congested areas on the Vietnam battlefield often requires extreme accuracy to insure the safety of friendly troops and civilians, and to insure this accuracy probable error data must be made available to Fire Direction Centers that generate M42A1 and Quad 50 caliber indirect fire missions.

(c) RECOMMENDATION: Appropriate agencies at the Air Defense Center or at Aberdeen should expedite the development of P_{E_a} and PE_r data in response to the letter forwarded by this headquarters to the Low Altitude Air Defense Systems Department, Ft. Bliss, Texas on 16 March 1969.

c. Training: None

d. Intelligence: None

e. Logistics: None

f. Organization: None

g. Other: None

Theodore H. Schmidt

THEODORE H. SCHMIDT
LTC, ADA
Commanding

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5 Incl
1. Battalion Organizational Structure
~~2. Unit Deployment and Missions~~
~~3. Automatic Weapons and Searchlight Positions~~
4. M42A1 Firing Tables
5. Searchlight Information Sheet
Incl 2 and 3 wd Hq, DA
DISTRIBUTION:
2 - USARPAC
3 - USARV
3 - II FFV Arty
1 - Bn File

AVFB-FAC (7 May 69) 1st Ind
SUBJECT: Operational Report of the 5th Battalion (AW)(SP), 2d Artillery for the Period Ending 30 April 1969, RCS CSFOR-65 (RI)(U)

DA, HEADQUARTERS, II FIELD FORCE VIETNAM ARTILLERY, APO 96266 27 MAY 1969

TO: Commanding General, II Field Force Vietnam, ATTN: AVFBC-RE, APO 96266

The quarterly report of the 5th Battalion (AW)(SP), 2d Artillery adequately reflects the operations and lessons learned during the reporting period.

L.D. KINNARD
Brigadier General, USA
Commanding

AVFBC-RE-H (7 May 69) 2nd Ind
SUBJECT: Operational Report of the 5th Battalion (AW)(SP) 2d Artillery for the Period Ending 30 April 1969, RCS CSFOR-65 (R1) (U)

DA, HQ II FFORCEV, APO San Francisco 96266 11 JUN 1969

THRU: Commanding General, US Army Vietnam, ATTN: AVHGC(DST), APO 96375

Commander-In-Chief, US Army Pacific, ATTN: GPOP-DT, APO 96558

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

This headquarters has reviewed and concurs with the Operational Report - Lessons Learned of the 5th Battalion, 2d Artillery for the period ending 30 April 1969.

FOR THE COMMANDER:

B. G. MACDONALD
1LT, AGC
Asst AG

AVHGC-DST (7 May 1969) 3d Ind
SUBJECT: Operational Report of the 5th Battalion (AW)(SP) 2d Artillery for the Period Ending 30 April 1969, RCS CSFOR-65 (R1) (U)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 26 JUN 1969

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

1. (U) This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1969 from Headquarters, 5th Battalion (AW)(SP) 2d Artillery.

2. (C) Comments follow:

a. (C) Reference item concerning Vulcan Indirect Fire Direction Equipment, section II, page 14, paragraph b(5); nonconcur. Recent evaluation of the Vulcan system conducted by the Army Concept Team in Vietnam (ACTIV) indicates that, based on the minimal number of indirect fire missions fired of the total targets engaged, the addition of an aiming circle to the platoon TOE is unnecessary. Additionally, it is expected that Vulcan platoons will normally conduct tactical operations in a decentralized configuration of four sections operating in widely dispersed areas, precluding the efficient use of one aiming circle per platoon. No further action is required. Unit will be notified of above comment.

b. (U) Reference items on Vulcan System, section II, page 14, para-2b(4); 2b(6); concur. The Army Concept Team in Vietnam (ACTIV) has prepared a Final Report to DA incorporating these recommendations as a result of the test analysis conducted by 1st Vulcan Combat Team (Prov) during the period 26 November 1968 - 20 April 1969. Unit will be notified.

FOR THE COMMANDER:

C. D. Wilson

C. D. WILSON
1LT, AGC
Assistant Adjutant General

Cy furn:
5th Bn, 2d Arty
II FFV

19 JUL 69

GPOP-DT (7 May 69) 4th Ind (U)
SUBJECT: Operational Report of HQ, 5th Battalion (AW)(SP), 2d Artillery for Period Ending 30 April 1969, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558

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

This headquarters has evaluated subject report and forwarding indorsements and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:

D. A. TUCKER
CPT, AGC
Asst AG

Inclosure 1
Battalion Organizational
Structure

ORGANIZATIONAL CHART

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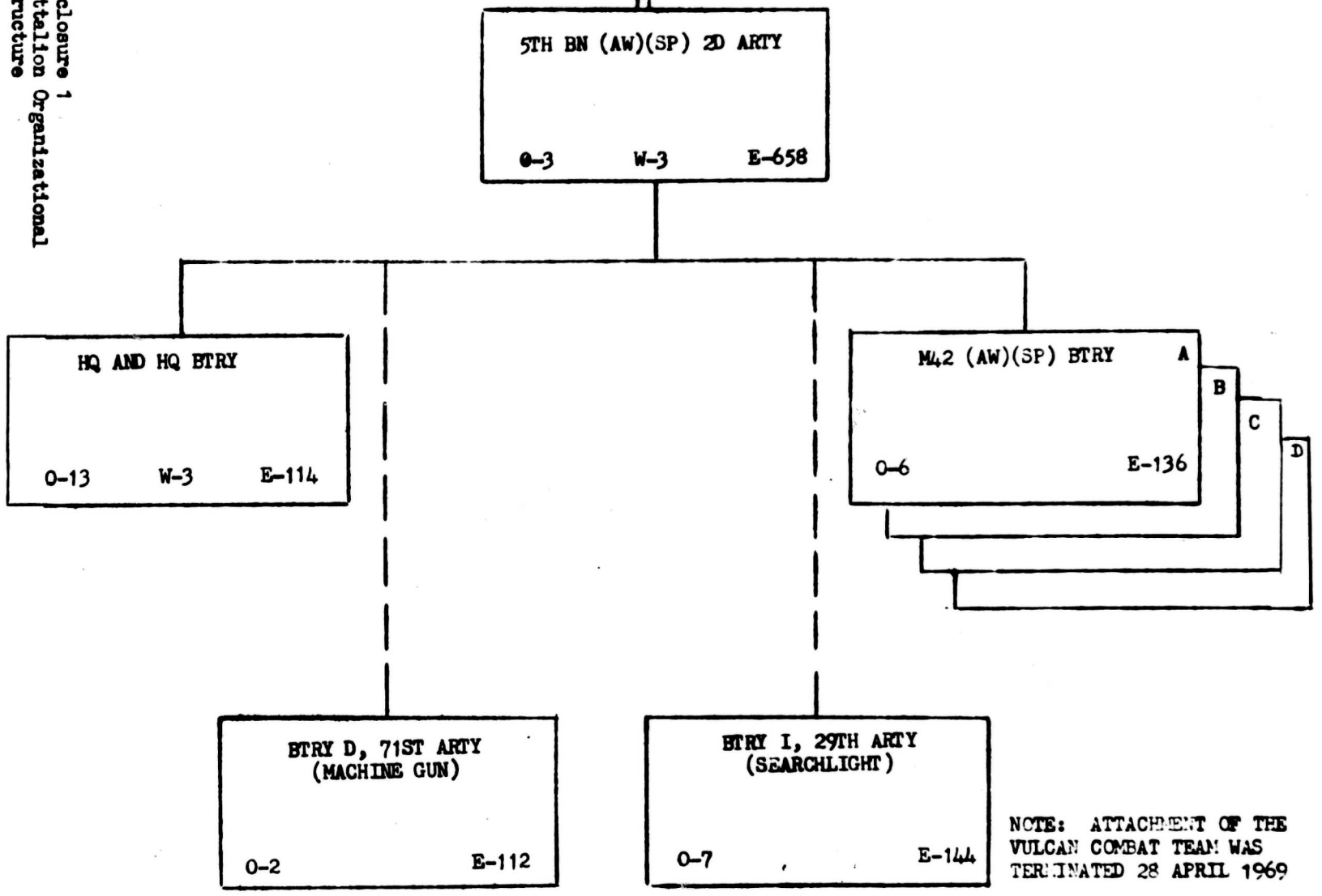

NOTE: ATTACHMENT OF THE VULCAN COMBAT TEAM WAS TERMINATED 28 APRIL 1969

PROVISIONAL FIRING TABLES

CANNON, 40 MM, DUAL AUTOMATIC GUN: M2A1

ON

GUN, SELF-PROPELLED, FULL TRACKED: TWIN 40 MM, M42A1

HEADQUARTERS, 5th BN (AW) (SP) 2d ARTY

15 APRIL 1969

Inclosure 4

GENERAL

The Provisional M42A1 Firing Tables were developed by the 5th Battalion (AW) (SP), 2d Artillery to refine existing gunnery data and to improve the first round accuracy of 40mm indirect fire. A formal request for improved firing tables has been submitted to the LAADS Department, Ft Bliss, Texas. Pending receipt of the improved firing tables, the attached provisional firing tables were developed as an interim measure to refine the data in the current LAM Department FT (Firing Tables) produced on 25 November 1968.

DEVELOPMENTAL BASIS

The current LAM Department FT were developed based on a MV (Muzzle Velocity) that is considerably less than the MV listed on Ammunition Data Cards that accompany the lots of 40mm ammunition currently available. Additionally, average MVs for Cartridge, 40mm, HEI-T, NON-SD, extracted from the November 68 Aberdeen Special Test Report were also considerably greater than the MV upon which the LAM Department FT was constructed. Using an AN/MPQ-4A counter mortar radar to determine "did hit" data for a 3 month period, it was proven that at all ranges 40mm indirect fire was characterized by constant range overages which proves that the MV upon which the current FT is constructed is less than the actual MV. To reduce the inaccuracies inherent in the existing FT, a provisional table was developed based upon an average MV determined from AN/MPQ-4A "did hit" data. To provide an even greater degree of accuracy and eliminate interpolation errors, the provisional firing tables provide data for each 10 meters of range, rather than for each 100 meters of range as listed in the current LAM Department FT.

M42 FIRING TABLE

RANGE	ELEVATION	MAX ORD In Feet
1000	8.1	7
1010	8.2	7
1020	8.3	7
1030	8.4	7
1040	8.5	8
1050	8.6	8
1060	8.7	8
1070	8.8	9
1080	8.9	9
1090	9.0	9
1100	9.1	10
1110	9.2	10
1120	9.3	10
1130	9.4	10
1140	9.5	10
1150	9.5	10
1160	9.6	10
1170	9.7	10
1180	9.8	10
1190	9.9	10
1200	10.1	10
1210	10.2	10
1220	10.3	10
1230	10.4	11
1240	10.5	11
1250	10.6	11
1260	10.7	12
1270	10.8	12
1280	10.9	12
1290	11.0	13
1300	11.2	13
1310	11.3	13
1320	11.4	14
1330	11.5	14
1340	11.6	14
1350	11.7	15
1360	11.8	15
1370	12.0	15
1380	12.1	16
1390	12.2	16
1400	12.3	16
1410	12.4	17
1420	12.5	17
1430	12.6	17
1440	12.7	18
1450	12.8	18

RANGE	ELEVATION	MAX ORD In Feet
1460	12.9	18
1470	13.0	19
1480	13.2	19
1490	13.3	19
1500	13.4	20
1510	13.6	20
1520	13.7	20
1530	13.8	21
1540	14.0	21
1550	14.1	21
1560	14.2	22
1570	14.4	22
1580	14.5	22
1590	14.6	23
1600	14.8	23
1610	14.9	23
1620	15.0	24
1630	15.1	24
1640	15.2	24
1650	15.3	25
1660	15.4	25
1670	15.5	25
1680	15.7	25
1690	15.8	26
1700	16.0	26
1710	16.1	27
1720	16.2	28
1730	16.4	28
1740	16.5	28
1750	16.7	30
1760	16.8	30
1770	16.9	31
1780	17.1	31
1790	17.2	32
1800	17.4	33
1810	17.5	33
1820	17.6	33
1830	17.8	34
1840	17.9	34
1850	18.1	34
1860	18.2	35
1870	18.4	35
1880	18.5	35
1890	18.6	36
1900	18.7	36

RANGE	ELEVATION	MAX ORD In Feet
1910	18.8	37
1920	19.0	37
1930	19.2	38
1940	19.3	39
1950	19.5	39
1960	19.6	40
1970	19.8	41
1980	20.0	41
1990	20.1	42
2000	20.3	43
2010	20.4	43
2020	20.6	44
2030	20.8	45
2040	20.9	45
2050	21.1	46
2060	21.2	47
2070	21.3	47
2080	21.4	48
2090	21.6	49
2100	21.7	49
2110	21.9	50
2120	22.1	50
2130	22.2	51
2140	22.4	52
2150	22.6	52
2160	22.8	53
2170	22.9	54
2180	23.1	54
2190	23.3	55
2200	23.4	56
2210	23.6	56
2220	23.8	57
2230	24.0	58
2240	24.1	58
2250	24.3	59
2260	24.5	60
2270	24.6	60
2280	24.7	61
2290	24.8	62
2300	25.0	62
2310	25.2	63
2320	25.4	64
2330	25.6	65
2340	25.8	66
2350	25.9	67
2360	26.1	68
2370	26.3	69
2380	26.5	70
2390	26.7	71
2400	26.9	72

RANGE	ELEVATION	MAX ORD In Feet
2410	27.1	73
2420	27.3	74
2430	27.5	75
2440	27.6	76
2450	27.7	77
2460	27.9	78
2470	28.1	79
2480	28.3	80
2490	28.5	81
2500	28.7	82
2510	28.9	83
2520	29.1	84
2530	29.3	85
2540	29.5	86
2550	29.8	87
2560	30.0	88
2570	30.2	89
2580	30.4	90
2590	30.6	91
2600	30.8	92
2610	31.0	93
2620	31.2	94
2630	31.3	95
2640	31.5	96
2650	31.7	97
2660	31.9	98
2670	32.1	99
2680	32.3	100
2690	32.6	101
2700	32.8	102
2710	33.0	103
2720	33.2	105
2730	33.5	106
2740	33.7	107
2750	33.9	108
2760	34.2	110
2770	34.3	111
2780	34.4	112
2790	34.6	114
2800	34.8	115
2810	35.1	116
2820	35.3	118
2830	35.5	119
2840	35.8	120
2850	36.0	122
2860	36.3	123
2870	36.5	124
2880	36.7	125
2890	37.0	127

RANGE	ELEVATION	MAX ORD In Feet
2900	37.2	128
2910	37.5	130
2920	37.7	131
2930	37.8	133
2940	38.0	134
2950	38.2	136
2960	38.5	138
2970	38.7	139
2980	39.0	141
2990	39.3	142
3000	39.5	144
3010	39.8	146
3020	40.0	147
3030	40.3	149
3040	40.6	151
3050	40.8	152
3060	41.1	154
3070	41.3	156
3080	41.4	158
3090	41.6	159
3100	41.9	161
3110	42.2	163
3120	42.5	164
3130	42.7	166
3140	43.0	167
3150	43.3	169
3160	43.6	171
3170	43.8	172
3180	44.1	174
3190	44.4	175
3200	44.7	177
3210	45.0	179
3220	45.2	181
3230	45.3	183
3240	45.5	185
3250	45.8	187
3260	46.1	189
3270	46.4	191
3280	46.7	193
3290	47.0	195
3300	47.2	197
3310	47.5	199
3320	47.8	201
3330	48.1	203
3340	48.3	205
3350	48.5	207
3360	48.7	209
3370	49.0	211
3380	49.3	213
3390	49.6	215
3400	49.9	217

RANGE	ELEVATION	MAX ORD In Feet
3410	50.2	219
3420	50.6	222
3430	50.9	224
3440	51.2	226
3450	51.5	228
3460	51.8	231
3470	52.1	233
3480	52.4	235
3490	52.8	238
3500	53.0	240
3510	53.2	242
3520	53.4	244
3530	53.7	247
3540	54.0	249
3550	54.4	251
3560	54.7	253
3570	55.0	255
3580	55.3	258
3590	55.7	260
3600	56.0	262
3610	56.4	265
3620	56.7	267
3630	57.0	270
3640	57.2	273
3650	57.4	276
3660	57.7	278
3670	58.0	281
3680	58.4	284
3690	58.7	286
3700	59.1	289
3710	59.4	292
3720	59.8	294
3730	60.1	297
3740	60.4	299
3750	60.8	302
3760	61.0	305
3770	61.2	307
3780	61.5	310
3790	61.8	312
3800	62.2	315
3810	62.5	318
3820	62.9	320
3830	63.2	323
3840	63.6	325
3850	64.0	328
3860	64.3	331
3870	64.7	333
3880	65.0	336
3890	65.3	338
3900	65.5	341

RANGE	ELEVATION	MAX ORD In Feet
3910	65.8	344
3920	66.1	347
3930	66.5	350
3940	66.9	353
3950	67.2	356
3960	67.6	358
3970	68.0	361
3980	68.4	364
3990	68.7	367
4000	69.1	370
4010	69.5	373
4020	69.7	377
4030	70.0	380
4040	70.2	383
4050	70.6	386
4060	71.0	390
4070	71.4	393
4080	71.8	396
4090	72.1	400
4100	72.5	403
4110	72.9	406
4120	73.3	409
4130	73.7	411
4140	74.0	414
4150	74.2	417
4160	74.5	420
4170	74.8	423
4180	75.2	425
4190	75.6	428
4200	76.0	431
4210	76.4	435
4220	76.8	439
4230	77.2	443
4240	77.6	447
4250	78.3	452
4260	78.4	456
4270	78.7	460
4280	79.0	464
4290	79.3	468
4300	79.7	472
4310	80.1	476
4320	80.5	479
4330	80.9	483
4340	81.3	486
4350	81.7	490
4360	82.1	494
4370	82.5	497
4380	83.0	501
4390	83.4	504
4400	83.7	508

RANGE	ELEVATION	MAX ORD In Feet
4410	83.9	512
4420	84.2	516
4430	84.6	520
4440	85.0	524
4450	85.4	528
4460	85.9	531
4470	86.3	535
4480	86.7	539
4490	87.2	543
4500	87.5	547
4510	87.7	551
4520	88.0	555
4530	88.4	559
4540	88.9	563
4550	89.3	566
4560	89.7	570
4570	90.2	574
4580	90.6	578
4590	91.1	582
4600	91.5	586
4610	91.9	590
4620	92.4	595
4630	92.7	599
4640	93.0	603
4650	93.3	608
4660	93.7	612
4670	94.2	616
4680	94.6	620
4690	95.0	625
4700	95.5	629
4710	96.0	634
4720	96.4	638
4730	96.8	643
4740	97.3	647
4750	97.8	652
4760	98.1	657
4770	98.4	661
4780	98.7	666
4790	99.1	670
4800	99.6	675
4810	100.0	680
4820	100.5	684
4830	101.0	689
4840	101.4	694
4850	101.9	698
4860	102.3	703
4870	102.6	708
4880	103.0	713
4890	103.3	717
4900	103.8	722

RANGE	ELEVATION	MAX ORD In Feet
4910	104.2	727
4920	104.7	732
4930	105.2	737
4940	105.7	742
4950	106.2	746
4960	106.6	751
4970	107.1	756
4980	107.4	761
4990	107.8	766
5000	108.1	771
5010	108.6	776
5020	109.0	781
5030	109.5	786
5040	110.0	791
5050	110.5	796
5060	111.0	801
5070	111.4	806
5080	111.9	811
5090	112.4	816
5100	112.7	821
5110	113.0	826
5120	113.4	831
5130	113.9	837
5140	114.4	842
5150	114.9	847
5160	115.4	852
5170	115.9	857
5180	116.4	863
5190	116.9	868
5200	117.4	873
5210	117.7	878
5220	118.1	884
5230	118.4	890
5240	118.9	895
5250	119.4	900
5260	120.0	906
5270	120.5	911
5280	121.0	917
5290	121.5	922
5300	121.8	928
5310	122.2	934
5320	122.5	939
5330	123.0	945
5340	123.5	951
5350	124.1	956
5360	124.6	962
5370	125.1	968
5380	125.6	974
5390	126.1	979
5400	126.7	985

RANGE	ELEVATION	MAX ORD In Feet
5410	127.0	991
5420	127.4	996
5430	127.7	1002
5440	128.2	1008
5450	128.8	1014
5460	129.3	1019
5470	129.8	1025
5480	130.4	1031
5490	130.9	1036
5500	131.4	1042
5510	131.9	1048
5520	132.5	1054
5530	132.9	1060
5540	133.2	1066
5550	133.6	1072
5560	134.1	1079
5570	134.6	1085
5580	135.2	1091
5590	135.8	1097
5600	136.3	1103
5610	136.8	1110
5620	137.4	1116
5630	137.8	1122
5640	138.1	1129
5650	138.5	1136
5660	139.0	1142
5670	139.6	1148
5680	140.2	1155
5690	140.7	1162
5700	141.2	1168
5710	141.8	1175
5720	142.4	1181
5730	142.7	1188
5740	143.1	1194
5750	143.4	1201
5760	144.0	1208
5770	144.6	1214
5780	145.1	1221
5790	145.7	1227
5800	146.3	1234
5810	146.8	1241
5820	147.4	1248
5830	147.8	1256
5840	148.2	1263
5850	148.6	1270
5860	149.1	1277
5870	149.7	1284
5880	150.3	1292
5890	150.9	1299
5900	151.5	1306

RANGE	ELEVATION	MAX ORD In Feet	RANGE	ELEVATION	MAX ORD In Feet
5910	152.1	1313	6410	179.6	1704
5920	152.6	1320	6420	180.0	1713
5930	153.0	1327	6430	180.4	1722
5940	153.4	1334	6440	180.8	1731
5950	153.8	1342	6450	181.5	1740
5960	154.4	1349	6460	182.2	1749
5970	155.0	1356	6470	182.8	1758
5980	155.6	1363	6480	183.4	1767
5990	156.2	1370	6490	184.1	1776
6000	156.8	1377	6500	184.8	1785
6010	157.4	1384	6510	185.2	1794
6020	158.0	1392	6520	185.6	1803
6030	158.6	1399	6530	186.0	1812
6040	159.0	1406	6540	186.7	1821
6050	159.3	1414	6550	187.4	1830
6060	159.7	1421	6560	188.0	1839
6070	160.3	1428	6570	188.7	1848
6080	160.9	1435	6580	189.3	1857
6090	161.5	1443	6590	190.0	1866
6100	162.1	1450	6600	190.4	1875
6110	162.7	1458	6610	190.9	1884
6120	163.3	1465	6620	191.3	1894
6130	163.7	1472	6630	192.0	1904
6140	164.2	1480	6640	192.6	1913
6150	164.6	1488	6650	193.3	1922
6160	165.2	1495	6660	194.0	1932
6170	165.8	1502	6670	194.7	1942
6180	166.4	1510	6680	195.3	1951
6190	167.0	1518	6690	195.8	1960
6200	167.6	1525	6700	196.2	1970
6210	168.2	1534	6710	196.7	1980
6220	168.6	1542	6720	197.4	1990
6230	169.1	1550	6730	198.1	2000
6240	169.5	1559	6740	198.7	2010
6250	170.1	1568	6750	199.4	2020
6260	170.7	1576	6760	200.1	2030
6270	171.3	1584	6770	200.8	2040
6280	171.9	1593	6780	201.3	2050
6290	172.6	1602	6790	201.7	2060
6300	173.2	1610	6800	202.2	2070
6310	173.8	1618	6810	202.9	2080
6320	174.4	1627	6820	203.6	2090
6330	174.8	1636	6830	204.3	2100
6340	175.3	1644	6840	205.0	2110
6350	175.7	1652	6850	205.7	2120
6360	176.4	1661	6860	206.2	2130
6370	177.0	1670	6870	206.6	2140
6380	177.6	1678	6880	207.1	2150
6390	178.3	1686	6890	207.8	2160
6400	178.9	1695	6900	208.5	2170

RANGE	ELEVATION	MAX ORD In Feet
6910	209.2	2180
6920	209.9	2190
6930	210.6	2200
6940	211.1	2210
6950	211.6	2220
6960	212.1	2230
6970	212.8	2240
6980	213.5	2250
6990	214.2	2260
7000	214.9	2270
7010	215.6	2281
7020	216.4	2292
7030	216.9	2303
7040	217.3	2314
7050	217.8	2325
7060	218.5	2336
7070	219.2	2347
7080	220.0	2358
7090	220.7	2369
7100	221.4	2380
7110	222.2	2391
7120	222.7	2402
7130	223.1	2413
7140	223.6	2424
7150	224.4	2435
7160	225.2	2446
7170	225.9	2457
7180	226.6	2468
7190	227.4	2479
7200	227.9	2490
7210	228.4	2502
7220	228.9	2514
7230	229.7	2526
7240	230.4	2538
7250	231.2	2550
7260	231.9	2562
7270	232.4	2574
7280	233.0	2586
7290	233.5	2598
7300	234.2	2610
7310	235.0	2621
7320	235.7	2632
7330	236.5	2643
7340	237.3	2654
7350	238.1	2665
7360	238.6	2676
7370	239.1	2687
7380	239.6	2698
7390	240.4	2709
7400	241.2	2720

RANGE	ELEVATION	MAX ORD In Feet
7410	242.0	2733
7420	242.7	2746
7430	243.5	2759
7440	244.0	2772
7450	244.6	2785
7460	245.1	2798
7470	245.9	2811
7480	246.7	2824
7490	247.5	2837
7500	248.3	2850
7510	249.1	2865
7520	249.6	2880
7530	250.2	2895
7540	250.7	2910
7550	251.5	2925
7560	252.3	2940
7570	253.1	2955
7580	253.9	2970
7590	254.4	2985
7600	255.0	3000
7610	255.5	3014
7620	256.4	3028
7630	257.2	3042
7640	258.0	3056
7650	258.8	3070
7660	259.6	3084
7670	260.1	3098
7680	260.7	3112
7690	261.2	3126
7700	262.1	3140
7710	262.9	3154
7720	263.8	3168
7730	264.6	3182
7740	265.2	3196
7750	265.7	3210
7760	266.3	3224
7770	267.1	3238
7780	268.0	3252
7790	268.8	3266
7800	269.7	3280
7810	270.5	3296
7820	271.1	3312
7830	271.6	3328
7840	272.2	3344
7850	273.1	3360
7860	274.0	3376
7870	274.8	3392
7880	275.4	3408
7890	275.9	3424
7900	276.5	3440

RANGE	ELEVATION	MAX ORD In Feet
7910	277.4	3456
7920	278.3	3472
7930	279.2	3488
7940	280.1	3504
7950	280.7	3520
7960	281.2	3536
7970	281.8	3552
7980	282.7	3568
7990	283.6	3584
8000	284.5	3600
8010	285.4	3617
8020	286.0	3634
8030	286.6	3651
8040	287.2	3668
8050	288.1	3685
8060	289.0	3702
8070	289.9	3719
8080	290.8	3736
8090	291.4	3753
8100	292.0	3770
8110	292.6	3787
8120	293.5	3804
8130	294.4	3821
8140	295.3	3838
8150	295.9	3855
8160	296.6	3872
8170	297.2	3889
8180	298.1	3906
8190	299.1	3923
8200	300.0	3940
8210	300.9	3959
8220	301.5	3978
8230	302.2	3997
8240	302.8	4016
8250	303.8	4035
8260	304.7	4054
8270	305.6	4073
8280	306.3	4092
8290	306.9	4111
8300	307.6	4130
8310	308.5	4149
8320	309.4	4168
8330	310.4	4187
8340	311.4	4206
8350	312.0	4225
8360	312.6	4244
8370	313.2	4263
8380	314.2	4282
8390	315.2	4301
8400	316.2	4320
8410	316.9	4341
8420	317.5	4362
8430	318.2	4383
8440	319.2	4404
8450	320.1	4425
8460	321.1	4446
8470	321.8	4467
8480	322.4	4488
8490	323.1	4509
8500	324.1	4530
8510	325.1	4551
8520	326.1	4572
8530	326.8	4593
8540	327.5	4614
8550	328.2	4635
8560	329.2	4655
8570	330.2	4677
8580	330.9	4698
8590	331.6	4719
8600	332.3	4740
8610	333.3	4764
8620	334.3	4787
8630	335.4	4810
8640	336.1	4834
8650	336.7	4858
8660	337.4	4881
8670	338.5	4904
8680	339.6	4928
8690	340.6	4952
8700	341.3	4975
8710	342.0	5000
8720	342.7	5024
8730	343.8	5048
8740	344.8	5073
8750	345.5	5098
8760	346.3	5122
8770	347.0	5146
8780	348.1	5171
8790	349.2	5196
8800	350.2	5220
8810	350.9	5246
8820	351.7	5272
8830	352.4	5298
8840	353.5	5324
8850	354.6	5350
8860	355.3	5376
8870	356.1	5402
8880	356.8	5428
8890	357.9	5456
8900	359.1	5480

RANGE	ELEVATION	MAX ORD In Feet
8910	359.8	5507
8920	360.6	5534
8930	361.3	5561
8940	362.4	5588
8950	363.5	5615
8960	364.3	5642
8970	365.0	5669
8980	365.8	5696
8990	366.9	5723
9000	368.1	5750
9010	368.9	5782
9020	369.6	5814
9030	370.4	5846
9040	371.5	5878
9050	372.3	5910
9060	373.1	5942
9070	373.9	5974
9080	375.0	6006
9090	376.2	6038
9100	377.0	6070
9110	377.7	6103
9120	378.5	6136
9130	379.7	6169
9140	380.5	6202
9150	381.4	6235
9160	382.2	6268
9170	383.4	6301
9180	384.6	6334
9190	385.4	6367
9200	386.2	6400
9210	387.0	6441
9220	387.8	6482
9230	388.7	6523
9240	389.5	6564
9250	390.7	6605
9260	391.6	6646
9270	392.5	6687
9280	393.4	6728
9290	394.3	6769
9300	395.2	6810
9310	396.1	6854
9320	397.0	6898
9330	397.9	6942
9340	398.8	6986
9350	399.7	7030
9360	400.6	7074
9370	401.5	7118
9380	402.4	7162
9390	403.3	7206
9400	404.2	7250

RANGE	ELEVATION	MAX ORD In Feet
9410	405.1	7302
9420	406.0	7354
9430	406.9	7406
9440	407.8	7458
9450	408.7	7510
9460	409.6	7562
9470	410.5	7614
9480	411.4	7666
9490	412.3	7718
9500	413.2	7770
9510	414.1	7837
9520	415.0	7904
9530	415.9	7971
9540	417.0	8038
9550	418	8105
9560	419	8172
9570	420	8239
9580	421	8306
9590	422	8373
9600	423	8440
9610	425	8550
9620	426	8660
9630	427	8770
9640	429	8880
9650	430	8990
9660	431	9100
9670	432	9210
9680	433	9320
9690	434	9430
9700	436	9500
9710	437.5	9650
9720	439	9760
9730	440.5	9870
9740	442	9980
9750	443.5	10090
9760	445	10200
9770	446.5	10310
9780	448	10420
9790	449.5	10530
9800	451	10640

DEPARTMENT OF THE ARMY
BATTERY I (SEARCHLIGHT) 29TH ARTILLERY
APO SAN FRANCISCO 96266

22 February 1969

SUBJECT: Searchlight Information Sheet

TO: Commanding Officer
5th Bn (AW) (SP) 2d Arty

I. Mission: The mission of the searchlight battery is to provide visible or infrared illumination in support of tactical night operations.

II. Characteristics and Capabilities:

**A. Range-visible.....4000 to 8000 meters
infrared.....400 to 800 meters

B. Candle Power
normal.....125 million
overdrive.....150 million

C. Beam Width
pencil or focus.....10 mils wide by 10 mils high
spread or defused.....120 mils wide by 10 mils high

D. Weight (light unit).....250 lbs.

III. Deployment

A. Normally a searchlight platoon will be assigned a mission of direct support of a division.

B. Elements of the searchlight battery will be further attached to units smaller than divisions.

C. The searchlight section (two lights) is the smallest element which should be allowed to operate for extended periods away from the battery.

(1) When a single light is employed (except on a tower) it does not provide 360° coverage, therefore it is recommended that light sections (two lights) be employed as one element.

**Atmospheric conditions decrease the effective range of both types of illumination by 25 to 50 percent.

Inclosure 5

(2) Under normal operations a searchlight should be operated for a period of 2½ hours, it then should be shut down allowing the light blower system to cool below 130° F. This takes approximately 15 minutes. Then the vehicle should be shut down for another 15 minutes to allow the engine to cool, giving the operator an opportunity to check the vehicle and engine compartment. If the lights are employed in pairs, this shut down period can be staggered insuring that one light is always operating.

(3) When determining location of the searchlight, they should always be integrated with the 23 inch xenon lights on tanks when available.

(4) Because of TOE structure, each searchlight section is only authorized one sergeant and three PFC's. When the lights are kept together, this sergeant will have much better control of his section.

IV. Principles Governing the Use of Visible Light for Battlefield Illumination

A. Battlefield illumination in support of friendly forces will be provided wherever and when ever needed, in the intensity of illumination required and throughout the period of time required.

B. Once illumination is provided to supported troops, it should be provided without interruption until the need for illumination is satisfied.

C. Battlefield illumination will be planned and coordinated with the use of infrared equipment in such a way that:

(1) No damage will be caused to the infrared equipment by exposure to direct intense visible light.

(2) Battlefield illumination will be avoided or reduced to an absolute minimum when infrared operations are going on.

(3) The most suitable means-visible or infrared light-will be used according to the situation.

(4) A rapid change from infrared to visible or vice versa can be performed.

D. Reflected illumination is available when the beam is directed against low lying clouds (150 to 500 meters). The area beneath this point of reflection receives a higher intensity of illumination than can be obtained from diffusion alone. If the conditions exist for reflected illumination, it complements the capabilities of starlight scopes within the area.

V. Tactical Employment

A. The searchlight provides an excellent night time surveillance and target acquisition device for utilization on the perimeter of a defense area.

B. Because of the line-of-sight characteristics of searchlights, they are complementary to direct fire weapons.

C. The infrared mode of operations will be used for normal night time surveillance activities. If a target is detected, the searchlight can continue to operate in the infrared mode if sufficient infrared viewing devices are available to weapons crews to allow them to engage the target or the searchlight can be switched to visible mode therefore illuminating the target so that it can be engaged.

D. With the addition of a pink filter the 23 inch jeep mounted searchlight is provided with a more effective source of infrared light for detection of enemy movement.

(1) Characteristics:

a. The new pink filter lense fits over the light source and allows an improved, higher frequency infrared light to be emitted.

b. The new lense provides a greater intensity of infrared light light to the area than does the old infrared shield. This is true at all ranges.

c. The new pink filter lense emits a red glow, however this glow is only visible for approximately 60 meters from the searchlight.

(2) Range:

a. When the searchlight is used in the wide angle mode of infrared the new pink filter allows the range of the infrared to be increased from 1000 to 1200 meters.

b. The pencil or narrow beam is increased from 1200 to 1600 meters.

(3) Tactical deployment:

a. This new pink filter should be used in conjunction with the starlight scopes of ambush patrols. The light should be directed to scan the ambush patrols field of fire. Thus the infrared light plus the moonlight greatly increased the effectiveness of the ambush patrol's starlight scopes enabling them to detect enemy movement much more effectively.

b. When possible, supported units should make starlight scopes available to searchlight crews. Starlight scopes used in conjunction with pink light provides magnification of elements on the battlefield and optimize available illumination.

E. When a new position is occupied the searchlight crews will immediately begin to prepare the position with special emphasis on the following:

(1) Coordination with the supported unit commander to insure that he is aware of his responsibilities to provide common logistical support to include the following:

a. Positioning and method of operation of the searchlight
b. Communications requirements
c. Mess support to include when available a fair share of sundrie packs
d. Maintenance support of common items available: carburators, fuel pumps, spark plugs, etc.
e. Rules of engagement

(2) Personnel bunkers with at least 3 layers of overhead cover. Supported unit should furnish: sandbags, PSP and engineer stakes.

(3) A platform to raise the searchlight jeep above any obstacles, if required. The materials for this should also be furnished by the supported unit.

(4) A sandbag wall behind and on both sides of the searchlight jeep. The wall should be as high as possible without interfering with the searchlight beam.

(5) Orientation of the searchlight to give more accurate information from the light to LDC or TOE.

(6) Because the personnel equipment are OP CON to the supported unit it is requested that unit 1SG and Commander assist by inspecting the searchlight operators and equipment to insure they maintain accepted standards of health and appearance.

(7) Technical assistance is available by contacting:
Commanding Officer
I Btry (SLT) 29th Arty
APO 96266
Phone: 928-5433

Harold D Coleman

HAROLD D. COLEMAN
CPT, ADA
Commanding

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