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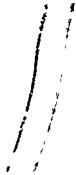
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DEPARTMENT OF THE ARMY  
OFFICE OF THE ADJUTANT GENERAL  
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGAM-P (M) (26 Nov 68) FOR OT UT 683291

29 November 1968

SUBJECT: Operational Report - Lessons Learned, Headquarters, 21st  
Signal Group, Period Ending 31 July 1968

AD 844818

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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 that the Army realizes current benefits from lessons learned during recent operations.
3. To insure that the information provided through the Lessons Learned Program is readily available on a continuous basis, a cumulative Lessons Learned Index containing alphabetical listings of items appearing in the reports is compiled and distributed periodically. Recipients of the attached report are encouraged to recommend items from it for inclusion in the Index by completing and returning the self-addressed form provided at the end of this report.

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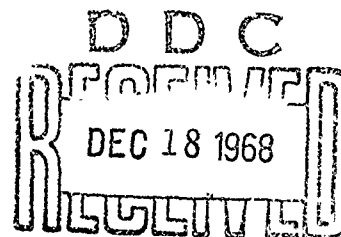
*C. A. Stanfield*

C. A. STANFIELD  
Colonel, AGC  
Acting The Adjutant General

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DEPARTMENT OF THE ARMY  
HEADQUARTERS, 21ST SIGNAL GROUP  
APO 96240

SCCPV-NG-OPT

9 August 1968

SUBJECT: Operational Report of Headquarters, 21st Signal Group  
(USASTRATCOM) for Period Ending 31 July 1968, RCS CS FOR-65 (RI)

Commanding General  
USARV  
ATTN: AVHGC-DST  
AFO 96375

1. Section 1, Operations: Significant Activities.

a. Mission. The mission of the 21st Signal Group is to provide Area Communication support within I and II Corps Tactical Zones as directed by competent authority.

b. General. During the reporting period 1 May 1968 through 31 July 1968, the assigned strength of the 21st Signal Group decreased to 6260. The decrease in strength was due to short-fill and delayed fill on monthly requisitions.

c. Activities.

(1) Principle Staff Changes.

(a) Colonel Daniel W. McElwee assumed command of the Group upon the departure of Colonel Charles H. Burr.

FOR OTUT  
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(b) Lieutenant Colonel Milton M. Nemky assumed the duties of the Deputy Group Commander, replacing Lieutenant Colonel Keith E. McCall Jr.

(c) Captain Donnie R. Rooks, Chief of Operations and Training Section (S-3), assumed additional duties as Group Intelligence Officer (S-2) upon the departure of LTC Herbert K. Thurmond.

(d) Lieutenant Colonel Keith E. McCall Jr. assumed duties as the Chief of Operations and Intelligence Section (S-2/3) upon the departure of CPT Donnie R. Rooks.

(e) Major Sylvester Johnson assumed duties as the Chief of Communications Section upon the departure of Major Burton D. Jones.

(f) Captain John M. Apgar assumed duties as the Group Aviation Officer upon the departure of CPT Bobby R. Wilkins.

(2) Distinguished Visitors.

(a) Brigadier General Hugh Foster, CG, USA Communications Systems Agency, visited the headquarters and was given an orientation briefing on the mission, organization, and functions of the Group.

(b) Colonel Jack P. Ancker, Deputy Chief of Staff, Logistics, USASTRATCOM, visited the headquarters and inquired into potential logistical problem areas.

d. Personnel and Administration

(1) The actual assigned strength of the 21st Signal Group at the end of the reporting period was 98.7% of the Group's authorized strength, and 87.1% of the required strength. The actual versus authorized strength figure indicates that this Command's present internal requisition identification control measures are functioning in a satisfactory manner.

(2) The actual assigned strength decreased 2.4% from the previous quarter. Although a high on-hand strength figure appears to indicate the presence of an extremely favorable personnel balance, critical skill shortages continue to hamper mission essential operations within the 21st Signal Group. Critical MOS shortages in MOS's 52B, 71B, 72B, and 72C have had detrimental effects on operations within the command. Reasons for the shortages can be attributed to frequently experienced short-fill and delayed fill on routine monthly requisitions. To meet increasing mission requirements, the increase in authorization currently reflected on this command's pending MTOE documents is the only constructive, long-range solution to the key signal operator-skill shortages presently being experienced within the 21st Signal Group.

(3) During the period 1 May to 31 July 1968, this Command awarded

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two Legion of Merit, 108 Bronze Stars (2 with 'V' device), 57 Army Commendation Medals (33 with 'V' device), 6 Air Medals (2 with 'V' device), 6 Purple Hearts, and 30 Certificates of Achievement. The 54th Signal Detachment, 37th Signal Battalion was awarded the Presidential Unit Citation for service in Vietnam during the period 20 January 1968 to 31 March 1968.

e. Operations.

(1) Communications Centers.

(a) Communications Centers were activated at Quang Tri Air Base, Wunder Beach, Cau Viet and Dalat (Task Force South) with circuits into the Army Area Common User Network. This brings the total 21st Signal Group operated communication centers to 33, a nearly 100% increase in the total number of 21st Group Communication Centers during the past 12 months. This has been accomplished with a minimal increase in equipment and personnel. The 21st Signal Group's assets of teletype equipment and operators have been dispersed and extended to the maximum extent possible. The total traffic volume has again increased better than 20% over the past quarter.

(b) The data facility (vanized IBM 1013) at An Hne was deactivated on 3 Jun 68. A survey revealed there was not enough traffic being passed to justify its continued operation. The data trained personnel were transferred to the 37th and 73rd Signal Battalion to fill operational requirements.

(c) A new data facility located at Danang South (vanized UNIVAC 1004) was activated into the Nha Trang ADSMC on 29 Jul 68. The data facility is primarily in support of the Da Nang Support Command. This facility will, however, have a teletype tape capability which will enable the facility to pass teletype messages at 1200 words per minute. It is estimated that this new facility will handle approximately 350,000 cards monthly. A definite trend will be established during the upcoming quarter.

(d) There were no new class IV communication centers activated during the past quarter. However, the new facilities at Nha Trang, Cam Ranh Bay and Chu Lai are approaching completion. The Nha Trang communication center is to be cutover within the next month. The completion of the above class IV projects will release needed tactical teletype equipment. Most of these will be returned to mobile van configurations (MSC-29's & MGC-17's) which will be restored to full operational capability. The new fixed facilities and associated fixed-station equipment, i.e. FGC-25X's, FGC-70's will provide faster and better teletype communications, hence, better service to our customers.

(2) Control Facilities. The total number of Technical Control Test and Patching facilities increased to 22 during the reporting period. The most significant advance was the installation of an SB-675 technical control facility at Vung Ro Mountain.

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(3) Radio. The total number of radio systems operated by the 21st Signal Group increased from 147 to 150, a 2% increase for the quarter. During the quarter AACS expanded from 73 to 77 systems while DCA systems decreased from 74 to 73. The total channel capacity provided by 21st Signal Group increased to 2540.

(4) Telephone. There were twenty-six projects completed during this reporting period involving switchboards and cable. At the end of this quarter 21st Signal Group personnel were operating 44 manual telephone exchange (MTE's) and 5 dial telephone exchanges (DTE'S) with a total of 7900 line terminations. As of the previous period there were 41 manual telephone exchanges (MTE's) and 5 dial telephone exchanges (DTE's) with a total of 7226 line terminations. A total of 2364 circuit miles of cable were installed this reporting period as compared to 3731 circuit miles for the previous period. The following major telephone management projects were completed during the reporting period:

(a) WUNDER BEACH: A manual telephone central office AN/MTC-7 was installed at Wunder Beach on 1 May 68.

(b) DUC PHO: An AN/MTC-1 was installed at Duc Pho and is providing base camp telephone service to the 11th Light Infantry Brigade. Installation date was 12 May 68.

(c) PHU HIEP: Antennas and transmission lines for the FAA aircraft control tower at Phu Hiep were installed 18 May 68.

(d) TUY HOA MACV: The Tuy Hoa MACV switchboard was downgraded to an AN/MTC-7 on 25 May 68.

(e) HOI AN SOUTH: An AN/MTC-7 was installed at Hoi An South and is providing telephone service to the 196th Light Infantry Brigade. Installation date was 25 May 68.

(f) DALAT: The outside cable plant project for Dalat was completed 31 May 68. This project provided Dalat with over 30,000 feet of multipair cable for a distribution cable outside plant.

(g) DONG BA THIN: Antennas and transmission lines for the FAA Aircraft Control Tower at Dong Ba Thin were installed 5 Jun 68.

(h) NHA TRANG NORTH: The outside cable plant distribution system to serve the ROK Army 100th Log Command was completed 9 Jun 68. This project connects the 100th ROK Army Log Command, ROK Army Field Command Headquarters, and the 459th Signal Battalion Area Signal Center.

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(i) DONG BA THIN: The DTE project scheduled for Dong Ba Thin was cancelled after the outside plant was installed. To make use of the outside plant, this project extended multipair cable to an AN/MTC-1 switchboard. Part of the outside plant was cutover to the AN/MTC-1 and all subscribers now have access to the switchboard via new distribution plant. Project was completed 9 Jun 68.

(j) NHA TRANG: Project CALL HOME. 21st Signal Group was tasked to install 2 telephones, one at the USO in downtown Nha Trang and the other at the American Red Cross located at the 8th Field Hospital. This project was completed 14 Jun 68.

(k) KONTUM: Rehabilitation of outside cable plant, Kontum. This project repaired multipair cables damaged by enemy activity in Kontum. Project was completed 14 Jun 68.

(l) CAMP HOLLOWAY, PLEIKU: Camp Holloway AN/MTC-7 was phased out with assistance from USAF. Dial service is now being provided from the USAF Pleiku DTE to subscribers in the Camp Holloway area. Completion date was 16 Jun 68.

(m) KONTUM: The AN/TTC-7 from Camp Holloway was installed in Kontum to upgrade the old SB-86. Kontum Switchboard completion date was 24 Jun 68.

(n) NHA TRANG: Modification of cable crossing the Cai River Bridge. The railing of a bridge supporting over a 200 pr cable over the Cai River in Nha Trang was slowly deteriorating. This project relocated the cable below the surface of the bridge and provided increased cable protection. Project was completed 27 Jun 68.

(o) AN KHE: Rehabilitation of outside cable plant, An Khe. This project repaired multipair cables damaged by enemy activity in An Khe. Project was completed 4 Jul 68.

(p) PHAN RANG: Phan Rang AN/MTC-1 was phased out with subscribers and trunking being cutover to the USAF Phan Rang DTE. Completion date was 10 Jul 68.

(q) CAM RANH BAY: Outside cable plant in support of Cam Ranh Bay support command headquarters. Completion date was 17 Jul 68.

(r) CAMP ENARI; PLEIKU SOUTH: This project provided cable distribution for the complex at Camp Enari. Project completion date was 18 Jul 68.



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f. Training.

(1) Mission Essential Training (MET) for the reporting period provided proficiency training for newly assigned personnel as well as training in MOS areas considered critical. Determination of critical MOS's as shown in the chart below, is based on MOS shortages, availability of quotas for formal training at service schools and degree of proficiency of assigned personnel. Mission Essential Training during the reporting period accounted for 629 personnel being cross trained, while 2637 personnel were given additional training in their PMOS with minimal time spent on formal instruction under supervision.

<u>MOS</u>	<u>JOB TITLE</u>	<u>TOTAL NR PERS TRAINED</u>	<u>NR PERS CROSS TRAINED</u>	<u>NR TRAINED PMOS</u>
05B	Radio Operator	45	11	18
05C	RATT Operator	161	19	92
26L	M/W Rad Rprm	571	148	334
31E	Fld Rad Rprm	63	11	27
31J	TTY Rprm	47	10	14
31L	Fld Rad Rel Rprm	50	7	34
31M	Fld Rad Rel Attnd	571	74	323
31N	Tac Ckt Contr	75	13	53
31S	Fld Gen Comsec Rprm	26	3	10
32D	Fixed Sta Tech Contr	67	36	53
32G	Fixed Crypto Rprm	10	2	9
32E	Fixed Plant Carr Rprm	119	47	22
35C	Lineman	506	38	195
36E	Cable Splicer	45	17	19
36G	MCO Rprm	55	14	26
36H	DCO Rprm	23	1	21
52B	Power Gen Equip Oper/Mech	77	14	41
72B	Comm Gen Spec	375	48	218
72C	Switchboard Operator	380	116	244

(2) The number of personnel receiving training in these MOS's reflects an increase of 650 over the previous period and is indicative of the heavy reliance placed on this phase of training by all units of the 21st Signal Group.

(3) Special Training Projects are highly effective in reduction of problem areas created by introduction of new equipment and recognized weaknesses of personnel in certain MOS's. The chart on the following page reflects the various special training projects that were conducted during the reporting period. PLL and 16mm projectionist training were added during this period. and are indicative of the policy of scheduling training as the need arises to provide and maintain a steady flow of qualified personnel. Training in all courses was conducted on a formal basis with course length varying according

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to the complexity of the equipment. After completion of training, individuals return to their units and are instrumental in conducting OJT of other members within their respective units.

<u>SCHOOL</u>	<u>TOTAL NR TRAINED</u>
Toll Tech Facilities	8
Cable Splicer	22
*Tropospheric Scatter	33
TTY Ckt Restoral	17
AN/GRC-106 Maint	1
Mode V Autodin	4
Pulse Code Modulation Maint	6
*Microwave Operator	40
Pulse Code Modulation Operator	23
**Prescribed Load List (PLL)	35
***16mm Projectionist	28

\*1st Signal Brigade Schools conducted by 21st Signal Group.

\*\*PLL Training conducted by 1st Logistical Command.

\*\*\*16mm Projectionist Training conducted by 160th Signal Group.

(4) Special Training, as reflected in the above chart, accounts for 217 personnel trained during the reporting period.

g. Intelligence.

(1) Enemy Activity. Units of the 21st Signal Group experienced a reduction in enemy activity during the reporting period as compared to the previous quarter which included the TET offensive. No signal sites within the Group came under serious or continuous attack during the reporting period.

(2) Equipment Damage. Overall equipment damage within the Group resulting from enemy damage is considered moderate with one 2½ ton truck and one 1½ ton trailer being the only items completely destroyed. Several other multi-pair cables, one 2½ ton truck, one AN/MRC-69, and two AN/MRC-112 antennas received moderate damage. Numerous vehicles, generators, and buildings received slight damage.

(3) Casualties. There were 4 KHA and 26 WHA during the reporting period. This is a 39% decrease in casualties compared to the previous quarter.

(4) Security Violations. There were three possible compromises and no administrative violations during the reporting period as compared to four compromises and seven administrative violations during the previous quarter. This is a 73% decrease.

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h. Logistics, None

i. Organization.

(1) The 544th Signal Detachment (Tropo) moved from Khe Sanh and Phu Bai in the 63rd Signal Battalion's area, to Da Nang in the 37th's area on 18 July 1968. The 517th Signal Detachment moved from Da Nang to Phu Bai on 18 Jul 68 also. These moves were prompted by the Marine's pullout at Khe Sanh. These were the only two moves made by units of the Group during the reporting period. There was no change in the Group's organization during the reporting period. See inclosure 1 for current 21st Signal Group Organization.

(2) A reorganization conference was held at 21st Signal Group headquarters on 7-8 July 1968. The conference resulted in the following plans.

(a) Divide the 21st Signal Group at the I - II CTZ boundary and form a Provisional Group Headquarters to assume area responsibility for I CTZ. The 21st Signal Group would then consist of the 41st, 43rd, 73rd, and 459th Signal Battalions with a total strength of 4265 while the Provisional Group would have the 63rd and 37th Signal Battalions and a total of 1906 personnel.

(b) Each unit's authorized strength would be adjusted by MTOE action to cope with current and known future missions. MTOE action would not be initiated, however, until those MTOE's currently pending DA approval are returned to the units.

(c) Each Group would have its own security force with the 21st Signal Group receiving a company and the Provisional Group receiving a platoon.

(d) Each battalion headquarters would be reorganized under TOE 11-76G with a strength of 122.

(e) Fixed communications facilities such as dial telephone exchanges, Class IV commcenters, Autodin terminals and tandem switches would be authorized under tables of distribution and allowances (TDA's).

j. Aviation.

(1) The Group Aviation Section is in the process of improvement of the Maintenance Section and the Operations Office through a self-help program. With ninety-five percent of the operations office renovated during the last quarter, the project will be completed by 30 August 1968. Clean-up and expansion of the maintenance areas continues with improvements to the present storage areas, and the addition of four new storage areas.

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(2) The aircraft revetments have been inspected and fifty percent of the existing sand bags were replaced.

(3) Training for enlisted personnel is anticipated for the coming quarter, as aircraft, airframe and engine school was completed by members of the aviation section during last quarter.

(4) The 41st Signal Battalion Aviation Section is involved in a program of on the job training for assigned personnel. Physical Security of the Aviation Section continues to improve with a program of added emphasis on alert practices.

(5) During the period of May, June and July 1968, availability figures are as follows.

FIXED WING

<u>MONTH</u>	<u>HOURS</u>	<u>MISSIONS</u>	<u>CARGO(tons)</u>	<u>PASS</u>
May	33	53	3	72
June	31	49	2	31
July	57	89	4	87
TOTAL (May-July)	121	191	9	190

ROTARY WING

<u>MONTH</u>	<u>HOURS</u>	<u>MISSIONS</u>	<u>CARGO(tons)</u>	<u>PASS</u>
May	240	803	30	849
June	319	944	36	2,041
July	256	783	27	1,755
TOTAL (May-July)	815	2,530	93	4,645

MAY-JULY QUARTERLY AVERAGES PER AIRCRAFT

	<u>AVAILABILITY</u>			<u>HOURS FLOWN</u>		
	<u>U1A</u>	<u>U6A</u>	<u>UH1D</u>	<u>U1A</u>	<u>U6A</u>	<u>UH1D</u>
* USARV	77	72	70	67	34	79
21st Sig	69	71	77	**16**18		70

\* USARV averages are for the 4th Quarter FY 68

\*\* Low utilization of Fixed Wing Aircraft due to shortage of Fixed Wing Aviators This has been remedied by cross-training of Fixed Wing pilots.

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2. Section 2, Lessons Learned: Commander's Observations, Evaluation,  
and Recommendations.

a. Personnel. None

b. Operations.

(1) Use of AN/MTC-9 as a long distance switchboard facility.

OBSERVATION: AN/MTC-9 (manual central exchange) equipment is unsuitable for use as a long distance switching facility. It was designed to function as a tactical, manual central office serving local subscribers.

EVALUATION: Connection of long distance trunking facilities to this switchboard results in improper circuit termination and operation. This application also results in the loss of call supervision to the operators and consequently a loss of efficiency due to the necessity of frequent challenging to determine the status of each call.

RECOMMENDATION: That long distance switchboard facilities be colocated with dial telephone exchanges (DTX's) and that AN/MTC-9 equipment not be employed as a long distance switching facility unless modifications are made to provide E and M signaling and plug supervision.

(2) Use of AN/TTC-28's as opposed to AN/MTC-9's in a tactical situation.

OBSERVATION: AN/TTC-28's and AN/MTC-9's are both 60C line central offices, however, the AN/TTC-28 is a dial central exchange and the AN/MTC-9 is a manual central exchange and requires more MOS 72C operator personnel.

EVALUATION: The dial service provided to subscribers by the AN/TTC-28 is much faster and more efficient and requires fewer operator personnel.

RECOMMENDATION: That consideration be given to replacing existing AN/MTC-9 installations with AN/TTC-28 equipment and that future installations use AN/TTC-28's.

(3) Use of Cable locator devices.

OBSERVATION: Buried cables without proper cable markings or line diagrams require cable locator devices for maintenance and trouble shooting.

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EVALUATION: The time saved by the use of a cable locator device for cable maintenance teams far outweighs the initial cost of such items.

RECOMMENDATION: That maintenance units not possessing such cable locator devices:

(a) Include them in next MTOE submission.

(b) Arrange to borrow and use cable locators from other units if available.

(4) Line isolation relay units, AN/MSQ-73.

OBSERVATION: Due to insufficient range of the bias control of the line isolation relays contained in the AN/MSQ-73, it is not possible to convert 20ma teletype keying to 60ma teletype keying.

EVALUATION: For this type of operation approximately 10ma of bias battery is required. The bias battery of the relay unit can be turned down to only approximately 20ma. Consequently when a mark is applied to the line winding of the relay, the 20ma line battery is insufficient to counteract the bias to pull the relay contact from the space contact to the mark contact.

RECOMMENDATION: That the line isolation relays units be modified by installing a bias potentiometer with a larger ohmic range. A field expediency is to add an 8200 ohm resistor in series with the bias potentiometer. This gives a bias range of 7.5ma to 10ma. Because of the limited range acquired this is not a completely successful solution. The resistor must be removed for 60ma to 20ma operation.

(5) AB-216 Towers.

OBSERVATION: In some congested areas it has been noted that AB-216 towers have not been installed in accordance with TM 11-5073. Guy attachment points at the tower and anchor points at the ground have been varied in order to avoid immediate obstacles in the congested area.

EVALUATION: Variation of the attachment and anchor points from points stated in TM 11-5073 decrease the stability of the towers considerably. Variation of tension on such guys cannot properly compensate for the incorrect installation in most cases. Improper installation endangers both equipment and human life.

RECOMMENDATION: That tower sites be relocated when surrounding obstacles prevent proper installation of AB-216 towers.

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(6) Deployable equipment report.

OBSERVATION: During the past quarter efforts have been made to establish an accurate reporting system to account for all deployable equipment available. The initial report of deployable equipment was compiled and was distributed to 1st Signal Bde and to all Battalions. Deployable equipment updates are made daily in the Communications Operations Report by all Battalions and are forwarded to 1st Sig Bde in the Daily Systems Progress report.

EVALUATION: This report provided a readily available reference for deployable equipment availability when immediate equipment requirements exist.

RECOMMENDATIONS: None

(7) Vanized UNIVAC 1004 problems.

OBSERVATION: This headquarters, has experienced several problems in conjunction with UNIVAC 1004 operation (Vanized), and is continuing to be plagued by difficulties beyond our capability to correct. Specifically, these are air conditioning, power generators, availability of spare parts and difficulties encountered in shipment.

EVALUATION: The 1004 vans are cooled by 4 TRANE (model CE20UAL6) 18,000 BTU air conditioners. They are small, high speed air conditioners, and at this time have a high deadline rate. The main problems are compressor motor failure, condenser failure (leaks) and blower motor failure. It has become necessary, at both Qui Nhon and Da Nang, to provide supplementary air conditioning due to the failures of the organic cooling equipment.

The accompanying power generator sets (2 trailer mounted, 50KW Catapiller generators) are commercial type unlike any standard army generator, and generator repairmen are not familiar with them. Manufacturer's publications and manuals did not accompany them, further hampering repairs. The repair parts are not available from the Army Supply System. The generators at both Qui Nhon and Da Nang are presently deadlined, awaiting parts that must be ordered from the manufacturers. Further, the trailer is non-standard and is not compatible for towing purposes with any vehicle in the Army inventory.

UNIVAC maintenance response has been adequate but the on-site supply and resupply of spare parts is a problem. Many of the needed parts have not been available in the immediate area, and had to be brought in from CONUS or from Saigon. This has caused considerable delay in restoring the systems to traffic.

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The 21st Signal Group was tasked to transfer a 1004 van from Nha Trang to Hui Nhon in November 1967, and another to Da Nang in July 1968. It was learned, in November that this van, because of its size, could not be moved by anything but a C-133 aircraft or the LTC Paige, a "one-of-its-type" landing craft in Vietnam.

RECOMMENDATIONS:

(a) That all of the above factors be seriously considered prior to deployment of additional UNIVAC 1004 vans.

(b) That local support facilities provide assistance in alleviating the air conditioning and generator problems.

(8) Abuse of the Message Precedence System.

OBSERVATIONS: The percentage of high precedence messages handled by 21st Signal Group communications centers continue to be a major problem. The large increase in message volume, month after month, is accompanied by the growing abuse and neglect by message releasers in the proper assignment of precedence according to the perishability of message content.

EVALUATION: During the 4th Qtr FY 68, nearly half (47.7%) of all traffic handled was of IMMEDIATE precedence. The statistics show that the percentage of IMMEDIATE traffic was 42.1%, 41.9% and 45.5% for the 1st, 2d and 3d Qtrs FY 68 respectively. Messages carrying a PRIORITY precedence also exceed 40% of the total traffic handled. For the past quarter, a mere 8.5% of the traffic was ROUTINE. The inflation of the precedence system is causing adverse effects on communication center operations. Bonafide IMMEDIATE messages are being delayed in system because IMMEDIATE messages are now so commonplace they can rate no special attention or handling.

RECOMMENDATION:

(a) That increased command emphasis be placed on the importance of proper precedence assignment.

(b) That all individuals assigned responsibility as a message releaser be required to attend mandatory training on the proper precedence assignment procedures in accordance with AR 105-31, Chapter 4.



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(c) That messages bearing a precedence of IMMEDIATE and/or FLASH be released by a field grade officer or specifically selected individuals. These personnel should be selected by the commander, and thoroughly indoctrinated on message precedence assignments.

(d) That each Headquarters establish Message Review Boards in accordance with AR 105-10. The Message Review Boards would place special emphasis on reviewing precedence assignments and taking appropriate action against those abusing the system.

c. Training.

(1) Selecting personnel to attend schools.

OBSERVATION: Recently there have been requirements to train personnel on equipment which their background had not prepared them for. This was particularly true in the recently organized AN/TRC-97B course.

EVALUATION: With the arrival in country of the AN/TRC-97B equipment during the latter part of June, a school was quickly organized and the first class began on 15 July. A problem developed immediately with the 31M personnel attending the class from I and II Field Forces in that they had insufficient background with Tropo equipment to keep pace with the rest of the class which consisted of 26L's.

RECOMMENDATION: In the future more care should be exercised in selecting the MOS of personnel to attend training on new equipment. The Program of Instruction on the new equipment should be reviewed to determine the requisite MOS and background for students selected to attend. When it is required to train personnel who obviously do not have the prerequisites to begin the course with the majority of the class, then consideration should be given to giving these personnel extra training in the requisite fundamentals prior to beginning the regular course. Further if plans are for the I and II Field Forces to operate tropospheric and/or microwave radio equipment in the future, they should be advised of the obvious necessity of modifying their TOE to include the appropriate MOS's (i.e. 26L).

(2) Mortar and fire direction control training.

OBSERVATIONS: Isolated signal sites within the Group must provide their own fire support and fire direction control. A constant training effort must be exerted to insure that the efficiency of the mortar teams are always at the highest level.

SCCPV-NG-OPT

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EVALUATION: Since there are no resources within the 1st Signal Brigade to train personnel in this area, units must take the initiative and not hesitate to call on infantry, artillery and similar units to provide the necessary training. The 3d Battalion 506th Infantry in Phan Thiet recently conducted mortar and fire direction control training for 16 personnel from the 73rd Signal Battalion.

RECOMMENDATION: Units continue to call on combat elements to provide training required which is not available within Brigade resources.

d. Intelligence.

(1) Physical Security of signal sites.

OBSERVATION: A careful analysis of the physical security of isolated signal sites revealed that the weakest point in most site perimeters was at the entrance to the site.

EVALUATION: The entrance to most sites is protected by a single gate and guard and would be the most vulnerable point through which an enemy could attack. The entrance is not normally protected with concertina, claymores, mines, etc. as is the rest of the perimeter.

RECOMMENDATION: Isolated sites within the 21st Signal Group have been directed to take the following precautions to correct the above deficiency:

(a) Extend the perimeter barrier (i.e. concertina, **barbed wire**, etc.) along the sides of the entrance road for a distance of 100 meters in order to channelize the approach.

(b) Extend the perimeter lighting for an equal distance along the entrance road.

(c) Construct a minimum of two removable barriers to be placed across the entrance road during the hours of darkness.

(d) Place five claymore mines on alternate sides of the entrance road. For safety reasons these mines are to be connected for firing only during hours of darkness.

(e) Ensure the entrance road is adequately covered by automatic weapons fire.

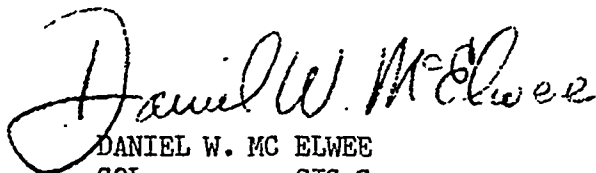
e. Logistics. None

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f. Organization. None



1 Incl  
as

DANIEL W. MC ELWEE  
COL SIG C  
COMMANDING

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- 9 ea - CG, 1st Sig Bde ATTN: SCCPV-OP-OR
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- 1 ea - CG, USASTRATCOM-PAC

SCCPV-OP-CR (9 Aug 68) 1st Ind  
SUBJECT: Operational Report of Headquarters, 21st Signal Group for Period  
Ending 31 July 1968, RCS CSFOR-65 (R1)

DA, HQ, 1st Signal Brigade (USASTRATCOM), APO 96384 13 September 1968

TO: Commanding General, United States Army Vietnam, ATTN: AVHGC-DST,  
APO 96375

1. Subject report is forwarded in accordance with USARV Regulation 525-15.

2. This headquarters has reviewed and concurs in the report as submitted with the following comments and/or exceptions concerning referenced paragraphs:

a. Paragraph 1e, p. 3-5. An updated Base Support Communication Study should be submitted when communications equipment is installed or removed from a respective site. This action will insure that current base camp equipment configurations are available to support COMEL planning by the next higher headquarters.

b. Paragraph 2b(1), p. 10. Concur in the concept of collocating the long distance switchboard facilities with a dial central office wherever possible. However, consideration must be given to the capabilities of the dial central office both to terminate the required number of trunks and to provide an adequate number of operator positions. In several areas the use of AN/MTC-9s as long distance facilities must continue because the local dial central office is incapable of providing the required service.

c. Paragraph 2b(2), p. 10. Concur that consideration should be given to the replacement of existing AN/MTC-9 manual central offices with AN/TTC-28 transportable dial central offices. Since the availability of these AN/TTC-28's is limited, prime consideration should be given to the level and type headquarters being served by the facility, with headquarters of division level or higher given the first priority. The AN/TTC-28 should be employed only in a semi-permanent type of environment where a suitable location for the equipment can be prepared and where requirements for its service will be for a period of at least six to twelve months.

d. Paragraph 2b(4), p. 11. This modification was devised by SFC Joe G. Palua of the United States Army Training Facility-1st Signal Brigade. A copy of his modification is attached at the end of the report as Inclosure #2.

e. Paragraph 2c(1), p. 14. Concur; however, the standard TOE of a Corps Signal Battalion does not allow for MOS 26L personnel. Therefore, it was necessary to substitute with closest associated MOS, this being 31M.

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SUBJECT: Operational Report of Headquarters, 21st Signal Group for Period  
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f. Paragraph 2c(2), p. 14. Annex B to Appendix III, SCCVR 350-3, Combat Indoctrination Training, requires that instruction be given in "Adjustment of Artillery and Mortar Fire." The amount of time spent on this subject is at the discretion of the commander.

FOR THE COMMANDER:

2 Incl s/William G. Skinner  
Added 1 Incl t/WILLIAM G. SKINNER  
2. Modification Proposal for Colonel, GS  
Tele-Signal Model 183B Line Chief of Staff  
Isolation Relay Unit

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

Commanding General,  
United States Army Strategic Communications Command  
ATTN: SCCOP  
Fort Huachuca, Arizona 85613

AVHGO-DST (9 Aug 68) 2d ind

MAJ Klingman/ds/LEN 4433

SUBJECT: Operational Report of Headquarters, 21st Signal Group  
(USASTRATCOM) for Period ending 31 July 1968, RCC CS FOR (RI)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375

18 OCT 1968

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 31 July 1968 from Headquarters, 21st Signal Group (USASTRATCOM).

2. Comments follow:

a. Reference item concerning use of the AN/MTC-9 as a long distance switchboard facility, page 10, paragraph ab(1) and 1st Indorsement, paragraph 2b: Concur with 1st Indorsement. The AN/MTC-9 provides a greater number of operator positions and line terminations than are available at the DSA position of many DTE's. The AN/MTC-9 switchboards will be eliminated as LD boards when TANDEM switches are installed.

b. Reference item concerning use of AN/TTC-28's as opposed to AN/MTC-9's, page 10, paragraph 2b(2) and 1st Indorsement, paragraph 2c: Nonconcur. The advantages of the AN/TTC-28 over the AN/MTC-9 are recognized. However, due to the excessive cost, it would not be economical to replace all MTC-9's with AN/TTC-28 switchboards.

c. Reference item concerning UNIVAC vanized 1004 problems, page 12, paragraph 2b(7): Concur in recommendation. Vanized UNIVAC 1004's were deployed as interim terminals, pending the installation of DSTE's. The unit will be notified by separate correspondence of the address of the command responsible for providing the replacement manufacturer's manual for generators.

d. Reference item concerning abuse of message precedence system, page 13, paragraph 2b(8). This headquarters is aware of the excessive number of high precedence messages originated throughout RVN and has attempted to alleviate the problem through the medium of Commanders Notes and the update of USARV regulations pertaining to communications economy. During September 1968, a command letter was dispatched to the field on the subject of communications economy. This letter included a checklist to enable commanders to review their responsibilities toward communications economy and take actions required by Army and USARV regulations. USARV

AVHGC-DST (9 Aug 68) 2d Ind  
SUBJECT: Operational Report of Headquarters, 21st Signal Group  
(USASTRATCOM) for Period Ending 31 July 1968, RCS CS FOR-65 (RI)

18 OCT 1968

Regulation 105-10, Message Review Board Program, requires the establishment of message review boards by the administrative offices of subordinate commands. A further study will be made of this problem and recommendations will be forwarded to the responsible commanders.

FOR THE COMMANDER:



A.R. GUENTHER  
CPT. AGC  
ASST. ADJUTANT GENERAL

Cy furn:  
HQ 1st Sig Bde (USASTRATCOM)  
HQ 21ST Sig Bn (USASTRATCOM)

GPOP-DT (9 Aug 68) 3d

SUBJECT: Operational Report of HQ, 21st Sig Gp for Period Ending  
31 July 1968, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 14 NOV 1968

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

This headquarters has evaluated subject report and forwarding indorse-  
ments and concurs in the report as indorsed.

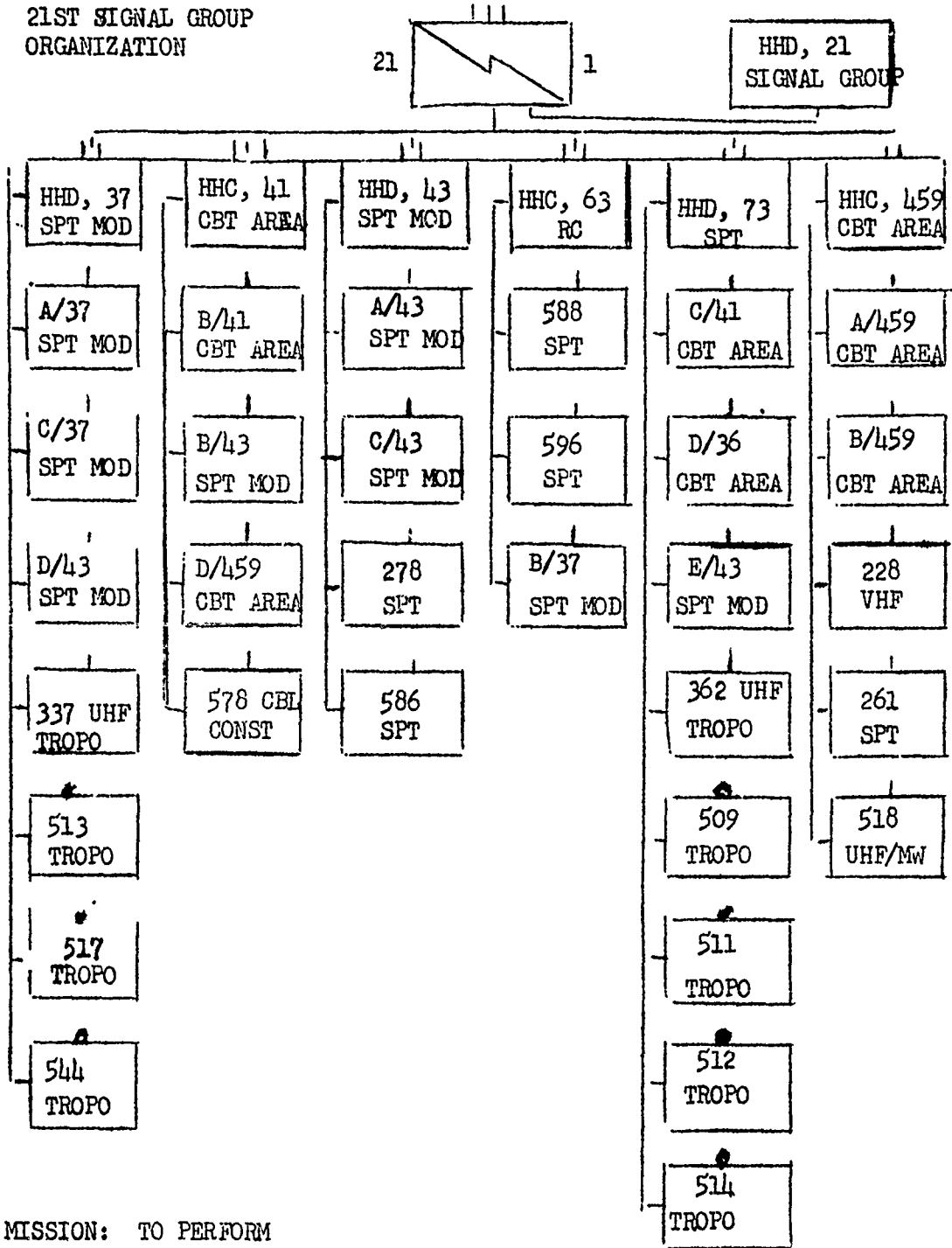
FOR THE COMMANDER IN CHIEF:



C. L. SHORTT  
CPT, AGC  
Asst AG



21ST SIGNAL GROUP  
ORGANIZATION



MISSION: TO PERFORM  
COMMUNICATIONS-ELECTRONICS  
FUNCTIONS WITHIN I AND II  
CTZ AS DIRECTED BY COMPETENT  
AUTHORITY

Incl 8/1

DEPARTMENT OF THE ARMY  
SOUTHEAST ASIA SIGNAL SCHOOL  
APO 96491

- SUBJECT:** Modification proposal of Tele-Signal Model 183B Line Isolation Relay Unit
- GENERAL:** The Tele-Signal Model 183B Line Isolation Relay Unit is found in the AN/MSQ-73 Semi-Tactical Interface Facility. The purpose of the relay unit is to provide interfacing of DC Telegraph Circuits passing through the van facility. The relay unit contains two relays and the associated components and is designed to be used with 4 wire full-duplex circuits (separate Send and Receive legs). While this relay unit is capable of handling most any interfacing situation requiring a relay, it does exhibit one shortcoming. It is not possible to use the relay unit in an application requiring the relay to operate with 20ma loop applied to the line winding (i.e., 20ma to 60ma loop conversion).
- PURPOSE:** The purpose of this report is to suggest a modification which can be made to the relay unit to enable it to be used in applications where 20ma loops will be required to operate the relay. These are very common in the interfacing of tactical stations to fixed stations.
- SCOPE:** This report will cover in detail the cause of the problem and then the required modifications will be fully explained and the necessary components and values will be given. All explanatory diagrams needed are also included as separate inclosures.
- PROBLEM:** A basic requirement for proper relay operation is that the Bias current supplied to the relay Bias Winding must be approximately one-half ( $\frac{1}{2}$ ) the magnitude of the current in the Line Winding during a Mark condition. (For circuits using Neutral Keying only.) This is the basis for the limitations found in the Model 183B Relay Unit.

Bias for the two relays in the Relay Unit is derived from the 130VDC power supplies incorporated in the AN/MSQ-73 Vans and factory wired to the relay units at the CDF. All current limiting and current controlling resistors are provided in the relay unit. The relay unit is provided with two resistors (one fixed and one variable) in each of the two Bias circuits. (Refer to resistors R1, R2, R9 and R10 shown on Inclosure #1.) The maximum value of resistance that can be inserted into the Bias circuit utilizing these resistors is 5500 ohms. Therefore, the minimum bias current that can be provided, using the 130VDC power supply, is 23ma. For proper operation of the relay with 20ma applied to the line winding, the bias must be reduced to 10ma. The only practical solution to this problem is to provide more resistance in the bias circuit when operating the relay on a 20ma loop. (The 130 VDC

power supply is used in other applications in addition to supplying bias current to the relays, therefore, it would not be practical to change the voltage of the power supply to achieve a lower bias current).

**SOLUTION:** There are two possible ways of inserting a larger resistance in the bias circuit. Solution #1 could be termed a "stop gap measure" which may be used to ease existing problems in the field which require immediate action in order to provide necessary communications. This solution is easily executed and can be done at the operator level in a matter of a few minutes.

Solution #2 is a permanent solution to the problem and should be accomplished as soon as possible. This modification will require more skill on the part of the personnel performing the modification and should, therefore, should be done by maintenance personnel of the necessary skill level.

Solution #1: This modification can be accomplished by utilizing an 8200 ohm  $\pm$  10% tolerance, 2 watt resistor of the wire wound variety in place of one of the straps that must be made on the rear of the relay unit. Since these straps have to be made in any case in order to connect the bias winding of the relay to the 130 VDC power supply, this would be the most convenient place to insert the added resistance. No soldering is required since the terminal board where the strap is made is of the screw terminal type. (Two resistors will be required for each relay unit if both the Send and Receive relays must be modified.)

NOTE #1 Refer to inclosure #1, note strapping and location of additional resistor.

NOTE #2 Relay can only be used for 20ma operation when strapped with resistor. Resistor must be replaced with normal strap if 60ma operation is desired.

With the 8200 ohm resistor inserted in the circuit, the range of bias current, controlled by the variable resistor, is reduced from 23ma - 52ma to roughly 9ma - 12ma.

Solution #2: A more permanent solution to the problem, one which would provide more versatility, ease of operation and greater range of compensation for resistance and voltage tolerances, would be to replace fixed resistors R2 and R10 (2500 ohms each) with 3800 ohm resistors and replace variable resistors R1 and R9 with 10,000 ohm potentiometers. These values will provide a continuously variable bias current range from 9ma to approximately 34ma. This range should be sufficiently large to handle all common circuit applications.

Components required for this modification are:

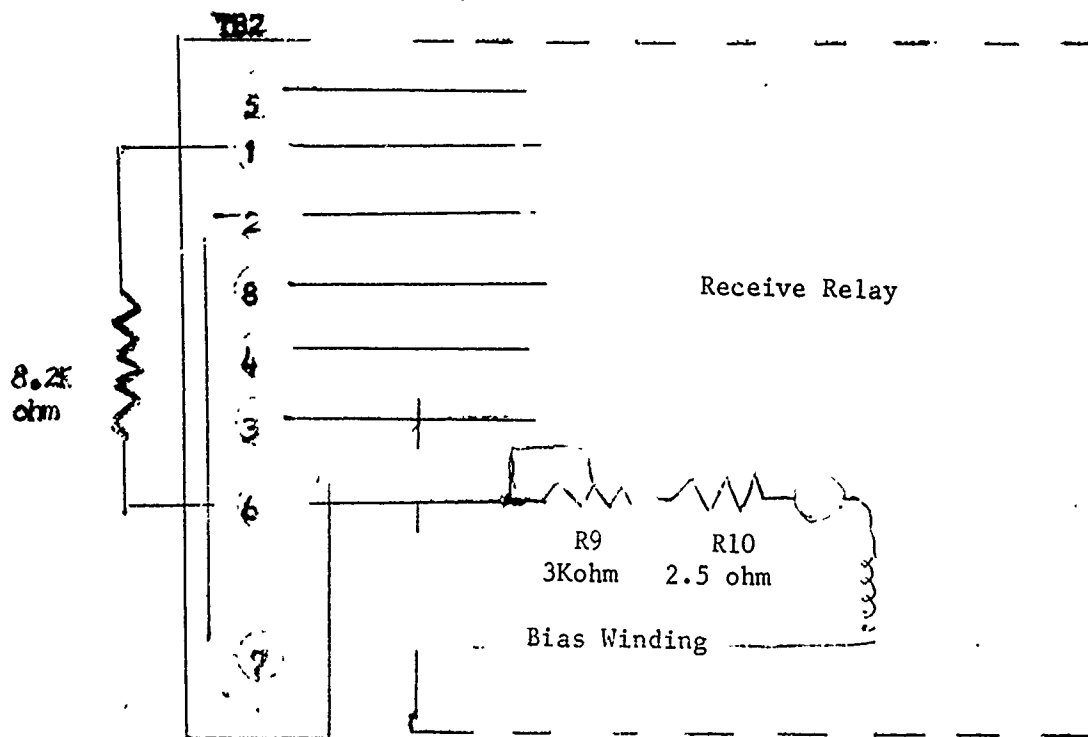
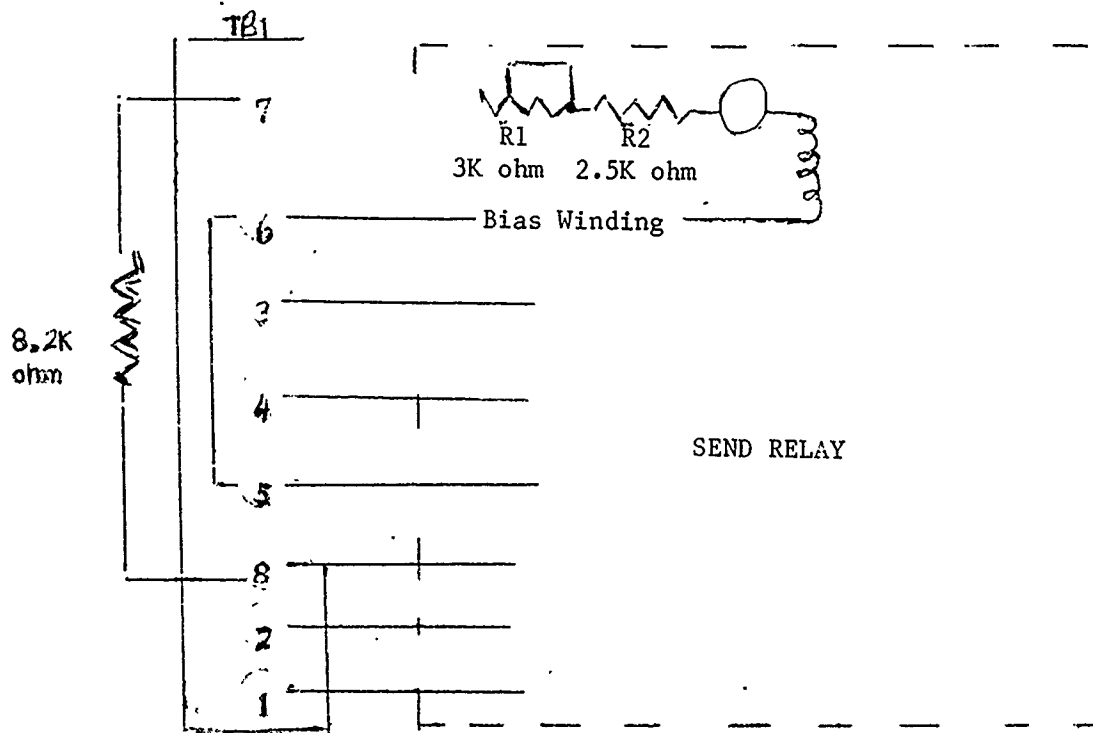
<u>Quantity per unit</u>	<u>Description</u>
2	3800 ohm $\pm$ 10% tolerance (or less), 5 watt, Wire Wound Res.
2	10,000 ohm $\pm$ 10% tolerance (or less), 5 watt, Wire Wound Res. Potentiometer

Modification will be performed by direct replacement of original components with the new values. (refer to Inclosure #2)

SUMMARY: With increasing demands of DC telegraph circuits presently being put on the communication systems utilizing the AN/MSQ-73 vans, the problem of interfacing fixed station telegraph equipment to tactical telegraph equipment is becoming greater. The 20ma to 60ma interface is very common in this situation, therefore, it is recommended that the modifications presented here be initiated as soon as possible.

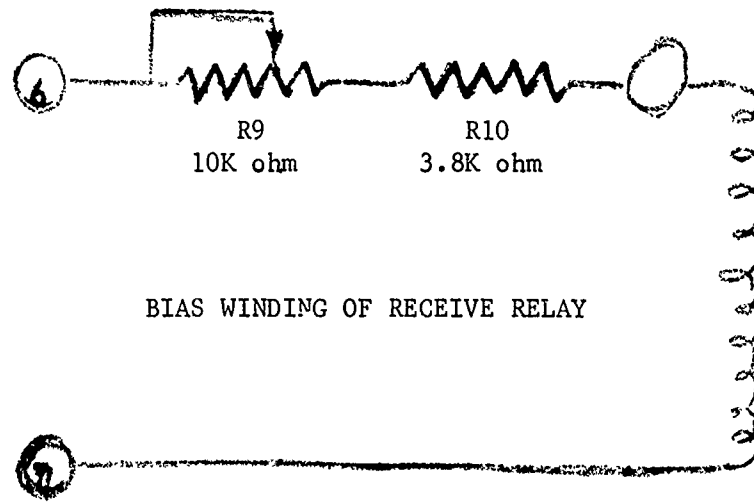
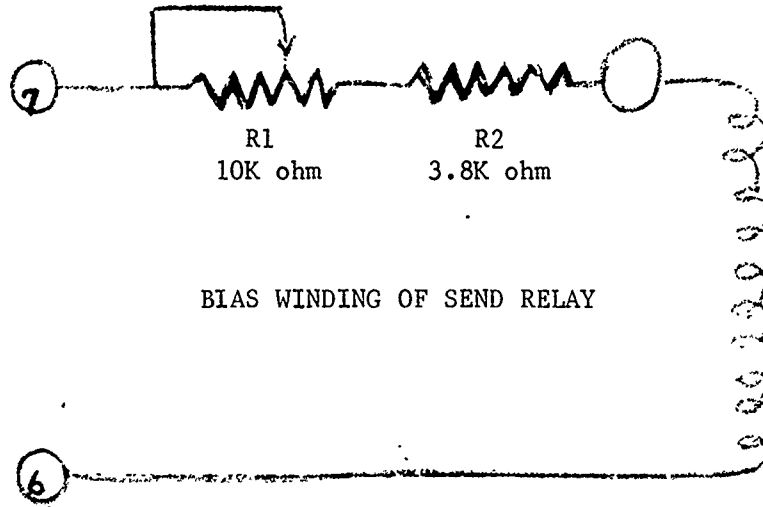
t/ SFC Joe G. Palau  
NCOIC, Systems Branch

Partial Diagram of Line Isolation Relay Unit  
 Model 183B showing strapping of Bias Winding  
 including use of additional bias resistor



Incl 1 to Incl 2

Diagram of Bias Windings of Send and Receive Relays in the Model 183B Line Isolation Relay Unit showing values of new resistors



Incl 2 to Incl 2

UNCLASSIFIED

Security Classification

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		2b. GROUP
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13. ABSTRACT		

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1 NOV 68

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The following items are recommended for inclusion in the Lessons Learned Index:

ITEM 1

\* SUBJECT TITLE \_\_\_\_\_  
\*\* FOR OT UT # \_\_\_\_\_  
\*\*\*PAGE # \_\_\_\_\_

ITEM 2

SUBJECT TITLE \_\_\_\_\_  
FOR OT UT # \_\_\_\_\_  
PAGE # \_\_\_\_\_

ITEM 3

SUBJECT TITLE \_\_\_\_\_  
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ITEM 4

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ITEM 5

SUBJECT TITLE \_\_\_\_\_  
FOR OT UT # \_\_\_\_\_  
PAGE # \_\_\_\_\_

\* Subject Title: A short (one sentence or phrase) description of the item of interest.

\*\* FOR OT UT# : Appears in the Reply Reference line of the Letter of Transmittal. This number must be accurately stated.

\*\*\*Page # : That page on which the item of interest is located.