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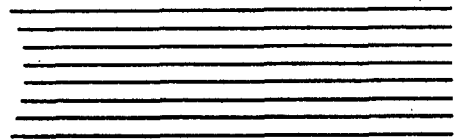
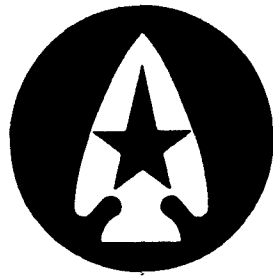
Command Post Program Study

Final Study

Executive Summary

UNITED STATES ARMY COMBAT DEVELOPMENTS COMMAND

Intelligence and Control Systems Group



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NOTICE

DISCLAIMER

The contents of this study, including findings, conclusions, and recommendations, are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

ACKNOWLEDGEMENT

The conclusions and recommendations of this study are those of the Commander, USACDC INCS Group. This study is based upon information gathered and analysis performed primarily by the USACDC INCS Group. Individuals having a major area of responsibility in the preparation of supporting study material are listed below:

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Cooperation and assistance were received from all USACDC elements in preparation of this study.

COMMAND POST PROGRAM STUDY

EXECUTIVE SUMMARY

1. INTRODUCTION.

a. With the recent reduction of US Army personnel strength based on the reduced level of hostilities in SEAsia and concurrent budgetary restrictions, additional emphasis is being given to means by which army resources - both men and materiel - may be more efficiently utilized. A major objective of this effort is improvement of the command and control structure for tactical forces in the field.

b. In 1971, USACDC conducted a preliminary investigation to determine equipment changes which could be expected to improve command and control capabilities of echelons from battalion through corps in the 1972-76 time frame. This investigation indicated that no major equipment changes would be effected during this period. As a result CDR USACDC directed that attention should be given to the current organization of tactical command posts with a view towards reducing personnel requirements and improving utilization of existing equipment.

c. This guidance has resulted in the Command Post Program, a study undertaken by USACDC Intelligence and Control Systems Group to determine means for improving equipment utilization and reducing personnel requirements of the current TO&E command post organization at battalion through corps levels in the 1973-76 time frame. To accomplish this task, a questionnaire was developed and directed to commanders and former commanders at these echelons, soliciting ideas and opinions which could form a base for development of desired improvements. The conclusions and recommendations of this study specifically exclude certain possible changes currently the subject of other formal study efforts as well as changes which could not realistically be implemented prior to 1976. These ideas will, however, be introduced into other ongoing command and control studies.

2. PROBLEM.

a. Commitment of sizable numbers of personnel to command and control functions has long been a matter of concern in the Army. In the near future, with significant reduction of forces expected, the most efficient utilization of soldier-strength is essential. The basic problem is to identify the lowest personnel commitment level which insures effective command and control and to recommend appropriate changes to H-series TOE.

b. In view of the anticipated imposition of lower overall troop strength ceilings, failure to identify excess personnel associated with

the command and control function may result in a lower number of personnel being available for combat forces. However, an indiscriminate reduction in the number of personnel associated with command and control may negate possible improvements in the commander's ability to direct his fighting forces. Thus, a balance must be struck between personnel reductions and command and control improvements.

3. PURPOSE. To review command and control functions during the pre-1976 time frame to determine how reductions in number of personnel can be achieved while increasing mobility and survivability and decreasing size and signature of command posts. Expected use of study results includes recommendations for minor changes to H-series TOE and doctrinal manuals which will result in improvement in command and control without causing major disruption.

4. OBJECTIVES.

a. To determine if the number of people committed to command and control during the pre-1976 time frame can be reduced, and if so, how, without causing major organizational disruption or degradation of command and control.

b. To EVALUATE physical size of command posts and RECOMMEND feasible decreases.

c. To DETERMINE means for reducing the electronic signature of command posts, without degradation of command and control.

d. To ASSESS the mobility and survivability of command posts with a view toward improving both.

e. To DETERMINE what minor revisions of TOE could be made to implement results of this study.

f. To DETERMINE testing requirements in support of evaluation of the study results.

5. METHODOLOGY. A comprehensive command and control survey, designed to support accomplishment of the stated objectives, was developed and distributed to selected commanders and former commanders world-wide. A qualitative, quantitative, and comparative analysis was then made of the survey results. Recommendations, where appropriate, for minor changes in organization, equipment, and doctrine will be forwarded to the appropriate proponent agency for evaluation and possible implementation.

6. ANALYSIS.

a. Qualitative Results.

(1) QUESTION 1. Can you suggest changes in personnel authorizations (numbers, functional organization, or grade) which would improve

your command and control capability?

(a) There was a 97% response to this question.

(b) Respondents to this question stated that an increase in number of personnel in the form of assistants, clerks, or radio operators are necessary to improve command and control capabilities. These requirements vary from battalion through division to facilitate a 24-hour operational capability over an extended period of time. Changes suggested for corps echelon stated that eliminating redundancy of communications equipment and associated personnel would improve command and control effectiveness.

(c) No structural realignment or grade change was suggested at Corps or Division echelons. Respondents did suggest that the two Majors (04) currently within the battalion be redesignated Deputy for Operations and Deputy for Support as an improvement. The two-deputy idea was also suggested for brigade echelon by some respondents.

(2) QUESTION 2. In the combat environment, do you believe that any of the principal staff members (S1/G1, S2/G2, S3/G3, S4/G4, S5/G5) should be senior in grade to the others? If so, indicate which ones.

(a) There was a 98.5% response to this question.

(b) Respondents to this question favored the S3 being the senior staff officer at battalion. Comments addressing brigade echelon were fairly equal but tended to support the S3 being the senior staff officer and the position upgraded to LTC. For Division and Corps echelons, there was strong feeling all staff officers should be of equal rank.

(3) QUESTION 3. Can you suggest a means for reducing the number of personnel committed to command and control at your echelon which would still allow you to achieve continuous operations?

(a) There was a 98.5% response to this question.

(b) Most respondents to this question suggested that a reduction in the number of personnel would be detrimental to command and control effectiveness.

(c) Respondents addressing Corps echelon did suggest a reduction in communications equipment which would thereby reduce personnel.

(4) QUESTION 4. Can you suggest a means of reducing the physical size of your command post complex without degradation of your command and control capability?

(a) There was a 100% response to this question.

(b) Respondents addressing each echelon suggested the physical size of command post can be reduced through austerity. Opinions reflected that less austerity could be implemented at battalion while more austerity is suggested at each succeeding higher echelon. Austerity was suggested through eliminating luxury items, elaborate briefing facilities, and excess vehicles.

(c) Decentralizing or dispersing staff elements was also suggested as a way to reduce the physical size of command post complex. Only the functions essential to tactical operations should comprise the command post complex.

(5) QUESTION 5. Can you suggest a means for reducing the electronic "signature" of your command post complex without seriously degrading your command and control capability?

(a) There was a 97% response to this question.

(b) Reduction in transmission time was suggested as the predominate means for reducing the electronic signature of command post. To reduce transmission time requires using radios for only essential tactical information and strict adherence to proper operating procedure.

(c) Issuing secure transmission radios was suggested as contributing to decreasing transmission time by allowing information to be transmitted without being concerned with violating security.

(6) QUESTION 6. Can you suggest changes in the type, quantity or capability of the communications equipment you are now authorized which would improve your command and control capability?

(a) There was a 100% response to this question.

(b) Respondents suggested that all radios have the secure transmission capability. They also recommended that communications equipment be more reliable, durable, less complex, lighter, smaller, better weather-proofed and more powerful.

(7) QUESTION 7. Are the maps you are currently authorized adequate for your operational needs in terms of scale and quantity?

(a) There was a 98.5% response to this question.

(b) The majority of respondents to this question consider current authorization of maps as adequate. Those who felt it was less than adequate suggested a more liberal distribution of 1:50,000 scale

maps is necessary at battalion and brigade. At Division and Corps echelon, the issue of 1:100,000 scale maps should be reinstated.

(8) QUESTION 8. How could the QUALITY of the maps you are currently authorized be improved to better meet your operational needs?

(a) There was a 95.5% response to this question.

(b) Updating maps was suggested more frequently as improving the quality of maps currently authorized.

(c) Respondents also suggested that durability of maps requires improvement through weather-proofing surface to allow writing and erasures, and ability to be easily folded.

(9) QUESTION 9. Can you suggest innovations in the map symbols currently used by your staff to display information?

(a) There was a 91% response to this question.

(b) Respondents felt that current map symbols are satisfactory and that no effort be directed toward changing them.

(10) QUESTION 10. Can you suggest changes in type, quantity, or performance criteria of power sources (such as generator) you are currently authorized?

(a) There was a 97% response to this question.

(b) Respondents generally felt the current power sources in the TOE are unsatisfactory. There is a need for a new family of generators which are more durable, require less maintenance, have interchangeable parts; and are lighter and smaller.

(11) QUESTION 11. Can you suggest changes which might be made in the shelters you are currently authorized which might lead to improvement of command and control?

(a) There was a 92.5% response to this question.

(b) Changes in shelters currently authorized were suggested as telescopic poles for tentage and lightweight tentage to replace the bulky tentage now in use.

(12) QUESTION 12. Can you suggest a means for improving reproduction of overlays and orders in the field?

(a) There was a 95.5% response to this question.

(b) Respondents to this question suggesting an improved reproduction capability recommend a Xerox type copier for overlays and

orders. The machine will have to be sufficiently rugged to withstand field operations.

(13) QUESTION 13. Can you suggest improvement in your personal command vehicle(s)?

(a) There was a 92.5% response to this question.

(b) Respondents suggested that the M114 Command Vehicle be replaced with the M113 Personnel Carrier.

(c) For all command vehicles it was recommended that secure communications equipment be installed.

(14) QUESTION 14. Can you suggest improvement in the vehicles you and your staff are currently authorized for use as operations centers in the field?

(a) There was a 92.5% response to this question.

(b) Respondents suggested that operation center vehicles have the capability to be connected to form a more integrated operations effort. To accomplish this, tent extensions on operational staff vehicles should have snaps or zippers to facilitate joining them together.

b. Qualitative Results.

(1) QUESTION 15. Current TOE authorization regarding ORGANIZATION for command and control is:

excellent	more than adequate	adequate	less than adequate	inadequate

(a) The scale on this question was collapsed into "adequate-excellent" versus "less than adequate-inadequate" categories.

(b) Respondents to this question generally felt that the current TOE regarding organization is adequate to excellent. Augmentation is accomplished when and where the situation so demands.

(2) QUESTION 16. It has been suggested that the combination of operations and intelligence elements might result in more effective command and control. Do you find this proposition at your level:

highly desirable	somewhat desirable	indifferent	somewhat undesirable	undesirable

(a) The scale on this question was collapsed into "indifferent-highly desirable" versus "somewhat undesirable-undesirable" categories.

(b) Generally, respondents interpreted the combining of operations and intelligence functions as collocating them in one physical facility. The respondents favored this combining of these two functions.

(c) There was strong opinion that merging the two functions at battalion under the supervision of a deputy for operations would improve effectiveness of command and control. Respondents tended to accept the merging of these two staff elements at Brigade. At Division and Corps echelons, respondents rejected the idea of merging the two elements due to their complexities at these levels.

(3) QUESTION 17. At your level, do you consider the number of personnel authorized by TOE for the receipt, processing and dissemination of information/intelligence:

excessive	more than adequate	adequate	less than adequate	inadequate

(a) The scale on this question was collapsed two different ways because of the varying responses for each category. Responses were collapsed first as "adequate-excessive" versus "less than adequate-inadequate"; then "more than adequate-excessive" versus "adequate-inadequate" categories.

(b) A significant number of respondents feel the TOE personnel authorizations are adequate. This is to say that they felt it was neither excessive nor inadequate, but just sufficient for the receipt, processing, and dissemination of information or intelligence.

(4) QUESTION 18. If someone suggested that you combine your logistics and personnel elements into a single staff element, would you find the idea:

undesirable	somewhat undesirable	indifferent	somewhat desirable	highly desirable

(a) The scale on this question was collapsed into "somewhat undesirable-undesirable" versus "undesirable-highly desirable" categories.

(b) Respondents felt that the functions of logistics and personnel were too divergent and complex to be combined. Each area is a separate career field unrelated in training, procurement, distribution, and use.

(5) QUESTION 19. (Please respond to this question even though it applies to the division level.) FM 101-5 states that dual-duty assignments should be limited to preserve integrity. At division level, several staff elements are perennially organized under a "dual-hat" concept; notably engineer, signal and artillery units. Do you believe that this "dual-hat" technique is preferred for elements of:

ENGINEER	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO
SIGNAL	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO
ARTILLERY	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO

(a) The strength of respondents' opinions on this question was measured for each of the three branches.

(b) At Brigade, Division, and Corps echelons, there is a significant preference for the dual-hat technique. However, at Battalion echelon, the preference is insignificant for or against the dual-hat concept.

(6) QUESTION 20. Current STAFF PROCEDURES for command and control, as outlined in FM 101-5, are:

inadequate	less than adequate	adequate	more than adequate	excellent

(a) The scale on this question was collapsed into "less than adequate-inadequate" versus "adequate-excellent" categories.

(b) A highly significant percentage (95%) of respondents felt satisfied with current staff procedures as outlined in FM 101-5.

(7) QUESTION 21. Some commanders establish clear-cut separation between planners and operators. Others integrate the two on a continuous basis. Does your TOC have any responsibility for PLANNING operations beyond 24 hours?

YES NO

(a) Respondents felt that some planning beyond 24 hours is necessary at all echelons. At battalion and brigade this planning consisted primarily of command post displacement, contingency missions, and logistics functions.

(b) At division level, it was felt that good planning is done a minimum of 24 hours in advance. While at Corps level, it is essential that planning be conducted as far in advance as permissible.

(8) QUESTION 22. In terms of current authorizations of personnel, is the information flow within your TOC, that is, the flow of information between elements of your TOC:

excellent	more than adequate	adequate	less than adequate	inadequate

(a) The scale on this question was collapsed into "adequate-excellent" versus "less than adequate-inadequate" categories.

(b) Respondents felt that information flow within tactical operations centers is adequate. Comments were made that it could be improved and suggestions for improvement were also stated.

(9) QUESTION 23. In terms of the information you need to make decisions, the information flow into your TOC from other TOCs is:

inadequate	less than adequate	adequate	more than adequate	excellent

(a) The scale on this question was collapsed into "adequate-excellent" versus "less than adequate-inadequate" categories.

(b) A significant portion of respondents who had commanded in combat felt that information flow between TOCs was adequate or better. On the other hand, non-combat commanders indicated no significant opinion on adequacy or inadequacy of information flow between TOCs.

(c) The majority of respondents who expressed dissatisfaction with the information flow between TOCs directed their comments to the lateral flow rather than the vertical flow of information.

(10) QUESTION 24. Would you evaluate your ability to accomplish airspace coordination as:

poor	fair	good	very good	excellent

(a) The scale on this question was collapsed into "good-excellent" versus "fair-poor" categories.

(b) A significant portion of respondents expressed a fair to poor ability to accomplish airspace coordination at all echelons. Responses given include a lack of doctrinal agreement between the Army and Air Force and lack of dedicated personnel and equipment to perform this function.

(11) QUESTION 25. Current TOE authorizations regarding EQUIPMENT for command and control are:

excellent	more than adequate	adequate	less than adequate	inadequate

(a) The scale on this question was collapsed into "adequate-excellent" versus "less than adequate-inadequate" categories.

(b) Respondents generally felt that command and control equipment currently authorized is adequate. Improvement of current equipment was expressed as needing attention, particularly radios and associated equipment.

(12) QUESTION 26. With current organization and equipment do you consider your command post:

immobile	almost immobile	borderline	moderately mobile	highly mobile

(a) The scale on this question was collapsed into "borderline-highly immobile" versus "almost immobile-immobile" categories.

(b) The majority of respondents felt that current organization and equipment permit reasonable mobility of the command post, although on the verge of being just sufficient.

(13) QUESTION 27. In light of the mid-intensity nuclear threat, do you consider your command post:

very vulnerable	somewhat vulnerable	borderline	moderately safe	invulnerable

(a) The scale on this question was collapsed into "borderline-invulnerable" versus "somewhat vulnerable-very vulnerable" categories.

(b) Respondents felt that command post vulnerability is a function of echelon. That is, the higher the echelon, the greater the feeling that the command post is vulnerable to a nuclear attack, e.g., 61% at battalion related to 100% at division and corps.

(14) QUESTION 28. Do you find the idea of computers at your level of command:

undesirable	somewhat undesirable	indifferent	somewhat desirable	highly desirable

(a) The scale on this question was collapsed into "indifferent-highly desirable" versus "somewhat undesirable-undesirable" categories.

(b) Most of the respondents find the idea of computers as undesirable. This feeling tends to decrease at division and corps echelons.

(15) QUESTION 29. Would you describe your "hands-on" experience with computers as:

extensive	above average	average	very little	non- existent

(a) The scale on this question was collapsed two different ways to more accurately pin point the level of the respondents' experience. The scale was first collapsed into "average-extensive" versus "very little-non-existent" categories. Secondly, the scale was collapsed into "above average-extensive" versus "average-non-existent" categories.

(b) A majority of the respondents have had very little or no "hands-on" experience with computers.

(c) The relationship on how respondents replied to this question and Question 28 is reflected in the chart below.

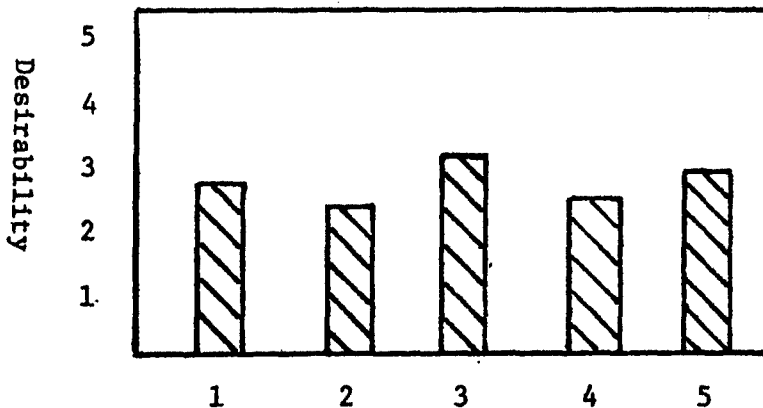


Figure 1 - Level of Experience

c. Comparative Analysis. Evaluation and comparison of the survey results revealed statistical insignificant difference in responses by category. Therefore, a comparative analysis was determined to be of little or no value and was not conducted.

7. CONCLUSIONS. In forming conclusions for this survey report, questions were grouped to support the study objectives to which they are related, either directly or indirectly.

a. Objective 1. To determine if the number of people committed to command and control during the pre-1976 time frame can be reduced, and if so, how, without causing major organizational disruption or degradation of command and control.

(1) There are three interrelated components which effect the performance of a particular function. Survey questions were grouped to address these components and conclusions thereto are included under this objective. These interrelated components are:

- (a) Staff organization.
- (b) Staff procedures and techniques.
- (c) Equipment supporting staff procedures and techniques.

(2) Staff Organization.

(a) Current TOE authorizations regarding organization are adequate; therefore, any reduction in the number of personnel would result in a degradation of command and control effectiveness. Personnel changes to improve command and control necessitates an increase of staff assistants, clerks and radio operators.

(b) At battalion level command and control would be enhanced by designating two deputy commanders. One deputy commander would be designated for operations (currently the S3), who would supervise and direct the functions of operations and intelligence. The second deputy commander would be designated for support (currently the executive officer), who would supervise and direct the functions of personnel and logistics. Adaptation of the two-deputy concept may prove effective at brigade level to enhance command and control.

(c) The merger of personnel and logistics staff functions should be discounted due to the complexity and diversity of these areas.

(d) The merger of operations and intelligence staff functions at battalion level, and possibly at brigade level, is feasible.

(3) Staff Procedures and Techniques.

(a) FM 101-5 adequately describes staff procedures in the exercise of effective command and control.

(b) Dual-hat assignments for Engineer, Signal, and Artillery commanders at division level preserve integrity in these areas and should be retained.

(c) Map symbols currently used for display of information should not be altered. Techniques for posting maps with current symbols vary throughout the Army and no one technique is prominent.

(d) The ability to accomplish airspace coordination at every echelon is ineffective to satisfy the needs of commanders.

(4) Equipment Supporting Staff Procedures and Techniques.

(a) Currently authorized TOE equipment is adequate to support staff functions.

(b) There are two weak areas where equipment should be improved to enhance command and control. One area is communications, which requires a secure radio transmission capability for all radios. In addition, the quality of radios should be improved so they are more powerful, reliable, durable, require less maintenance, and are less complicated to repair and maintain. The other area requiring attention is the quality of maps. Map production procedures should be changed so that maps are reproduced to be weather-resistant and allow writing and erasure with ballpoint pens, lead pencils, and grease pencils.

(c) A ruggedized automatic reproduction capability will reduce staff reaction time at brigade and division echelons in publishing and distributing plans and orders.

(d) Use of computers should be limited at this time to above the division echelon. Adaptation of computer systems at division level and below will require less delicate equipment to withstand field operations.

b. Objective 2. To evaluate physical size of command posts and recommend feasible decreases.

(1) Survey questions considered related to this objective are those which address major items of equipment. Survey question number 4 specifically addresses the physical size of CPs.

(2) The physical size of a command post complex can be reduced by eliminating major items of equipment nonessential for effective tactical operations, e.g., elaborate briefing facilities and large messing facilities.

(3) Reduction in the physical size of a command post complex can be accomplished by the dispersion and relocation of functional elements not directly associated with control of tactical operations.

(4) A command post complex can be reduced in physical size by restricting traffic flow of all types of vehicles into the command post area.

c. Objective 3. To determine means for reducing the electronic "signature" of command posts without degradation of command and control.

(1) Survey questions related to this objective are those which address communications equipment.

(2) The electronic signature of command posts can be reduced by using secure transmission radios to transmit only essential tactical information with proper radio procedures being strictly enforced.

d. Objective 4. To assess the mobility and survivability of command posts with a view toward improving both.

(1) Survey questions related to this objective are those which address vehicles, shelters, and communications equipment.

(2) Mobility.

(a) Increased mobility of command posts can be achieved by reducing set-up and tear-down time of shelters. This time can be reduced by using telescopic poles for tentage and replacing current tentage with lightweight tentage. Tentage used as vehicle extensions should be designed to allow easily joining other vehicle extension tentage.

(b) The M113 Personnel Carrier should be used as the tactical command vehicle.

(3) Survivability.

(a) Vulnerability of command posts as a nuclear target can be decreased by reducing its physical size and electronic signature. See conclusions for objectives 2 and 3.

(b) Vulnerability (mobility, dispersion, hardening) of command posts as a nuclear target cannot be significantly reduced without degradation to command and control effectiveness.

8. RECOMMENDATION. The conclusions drawn from the questionnaire analysis do not appear to support any specific recommendations for this study. In view of the fact the survey population was limited; a transfer of ideas within questions and responses to questions was lacking; and the main thrust of the study remains to surface candidate areas for further investigation to improve command and control, only one general recommendation is presented. It is recommended that the Command Post Program Study be incorporated into the IBCS 2d Refinement Study, which will be field tested and later evaluated during the IBCS 3d Refinement Study effort.