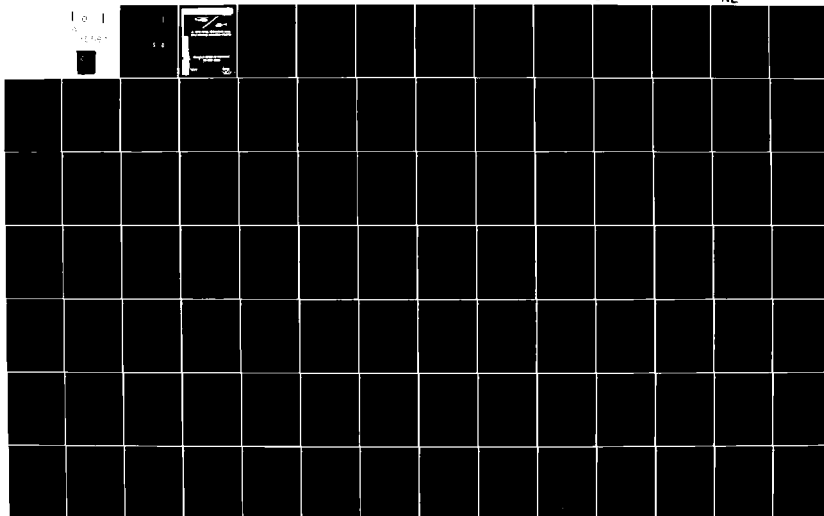


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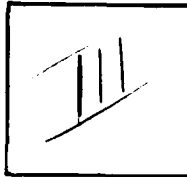


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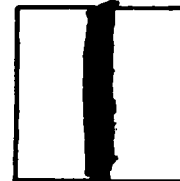
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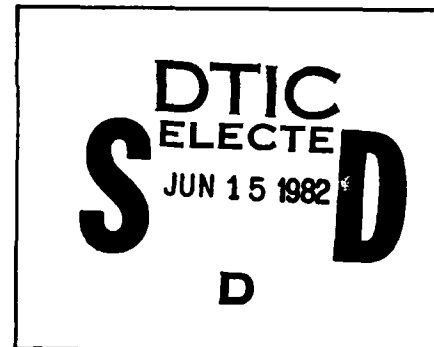
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AIR TRAFFIC CONTROL TOWER OPERATOR COURSE
(93H10) OPERATIONAL EFFECTIVENESS EVALUATION

William A. Rowe

and

J. Burkett Howard

DES-81-4

Directorate of Evaluation and Standardization
United States Army Aviation Center
Fort Rucker, Alabama 36362

May 1981

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The objective of the evaluation was to determine the training effectiveness of the Army's Air Traffic Control (ATC) Tower Operator Course (MOS: 93H10) in terms of the graduates on-the-job performance. A two phase methodology was used. In phase one, questionnaires were mailed to a six month sample of course graduates and their unit commanders. Task specific ratings of training adequacy were obtained. Analysis of these data yielded fifteen tasks that were suspected of having training problems. (Continued on Reverse Side.)		

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The second phase subjected the fifteen tasks to closer scrutiny. Field interviews were conducted with recent graduates and their immediate supervisors. Findings from this phase confirmed problems in six task areas.

Undertraining was identified as a problem in assembly and disassembly of the tactical flight control central and in emergency procedures. Equipment related problems were confirmed in two Nuclear, Biological, and Chemical (NBC) task areas. Limited field performance of Instrument Flight Rule (IFR) and Instrument Landing System (ILS) tasks brought the practicality of school instruction in these areas into question.

EXECUTIVE SUMMARY

1. The Directorate of Evaluation and Standardization, United States Army Aviation Center conducted an evaluation of the Air Traffic Control (ATC) Tower Operator Course (MOS 93H10). The goal of the evaluation was to determine if the course was meeting the needs of operational ATC units in the field. A two phase methodology was used.
2. Phase one was a mailed questionnaire effort. Graduates in the field and their commanders rated the adequacy of the school's training task-by-task, based upon the graduates' performance on the job. Possible problem tasks were identified during this phase.
3. The second phase obtained detailed information regarding the suspect tasks through interviews conducted in ATC field units. Following analyses of the interview data, six tasks out the original eighty-seven evaluated were found to display consistent evidence of training related problems.
4. Two tasks were selected due to high levels of non-performance in the field:
 - a. Separate IFR departures and arrivals, non-radar.
 - b. Prevent aircraft from entering ILS critical areas.

5. Two tasks surfaced due to problems relating to equipment availability:

a. Perform mask-to-mouth resuscitation to a chemical agent casualty.

(Type of mask issued to ATC units does not have this function.)

b. Decontaminate self and individual equipment. (The school did not have the decontamination training kits.)

6. Two tasks were cited due to undertraining:

a. Handle flight emergencies.

b. Operate AN/TSQ-70A flight control central.

7. During the unit interviews, tactical ATC personnel unanimously expressed a need for more hands on instruction in the tactical phase of training. There was also a great amount of concern noted (both in fixed base and tactical units) regarding the high proportion of recent graduates trained at the 93H10 skill level, filling 93H20 and 93H30 slots by virtue of their rank rather than their MOS experience.

TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGEMENT	i
REPORT DOCUMENTATION PAGE	ii
EXECUTIVE SUMMARY	iv
TABLE OF CONTENTS	vi
1. INTRODUCTION	1
2. PHASE I - FIELD QUESTIONNAIRES	2
Purpose	2
Background	3
Procedure	3
Analysis and Findings - Quarter One	8
Analysis and Findings - Quarter Two	10
Commanders Questionnaire Data Analysis	13
3. PHASE II - FIELD FOLLOW-ON	14
Purpose	14
Background	14
Procedure	15
Findings	18
4. GENERAL OBSERVATIONS	33
5. DISCUSSION	37
APPENDIXES	
A. Graduate Questionnaire (Version A)	
B. Commander's Questionnaire	
C. Graduate Questionnaire Suspect Task Crosstabulations	
D. Commander's Questionnaire Suspect Task Crosstabulation	
E. Interview Guidesheets	
Annex I - Graduate Interview	
Annex II - Supervisor Interview	
F. References	
G. Distribution	

1. INTRODUCTION:

a. The Army has been conducting the Air Traffic Control (ATC) Tower Operator Course at Fort Rucker, Alabama since January of 1970. Approximately two hundred students a year graduate from the course (Fiscal Year 1980 data). The course is designed to provide enlisted personnel with a general knowledge of Visual Flight Rule (VFR) air traffic control procedures in order to obtain a Federal Aviation Administration (FAA) Certificate of Grades. It is also designed to give the student a working knowledge of procedures and duty positions used in Visual Flight Rule (VFR) and Instrument Flight Rule (IFR) control towers.¹ The entire program of instruction is built upon a thirteen week and one day time frame, yet provides a certain amount of flexibility with a student self-paced format. Training is intended to accommodate the 93H10 Military Occupational Specialty (MOS).

b. The training effectiveness of this course, that is, the extent to which it serves the field, is of primary importance to the trainer. It is essential that the operational relevance of the training be sampled periodically in terms of the graduates on-the-job proficiency. The trainer must know if students who successfully complete a program of instruction are able to perform the job for which they are trained. It is also necessary to determine if the job awaiting a graduate of the course is the same as when the front end analysis was conducted during the design of the course. The need for such awareness served as the basis for the external evaluation effort described by this report.

¹ Program of Instruction for 222-93H10 Air Traffic Control Tower Operator Course, MOS: 93H10, United States Army Aviation Center, Ft Rucker, AL, May 1980.

c. The evaluation was conducted in two phases. The first was a questionnaire phase. Items in the questionnaire were based on the task list used in the design of the course. Ratings relating to the adequacy of training on the tasks were obtained from a sample of recent course graduates and a sample of the graduates's unit commanders. The ratings allowed a subset of tasks representing possible training problems (referred to hereafter as suspect tasks) to be extracted from the rather large set of tasks addressed in training. The limitations generally found with performance related questionnaire data prohibited conclusions from being drawn at this point regarding training effectiveness. The reduced list of tasks did, however, permit a follow-on effort to be conducted that enlisted detailed measures that otherwise would have been impracticable. The second phase of the evaluation was comprised of the follow-on effort. During this phase interviews were developed for both recent graduates and supervisors in order to obtain harder data relevant to the suspect tasks. The interviews were conducted with Air Traffic Control Tower personnel on the job site. The following text details the procedures followed and the results of both phases of the evaluation.

2. PHASE I - FIELD QUESTIONNAIRES:

a. Purpose.

(1) To identify areas of Air Traffic Control Tower Operator training (hereafter referred to as 93H training) perceived as being incompatible with job requirements of ATC field units.

(2) To initiate a systematic process whereby such perceived problem areas can be subsequently evaluated at the highest level of objectivity that circumstances will allow.

b. Background. The 93H questionnaire program was conceived in October 1979. The goal of the program was to use survey techniques to identify possible problem areas related to institutional training. Questionnaires were designed to obtain task specific ratings of training adequacy from 93H graduates after their assignment to a permanent unit and from the unit supervisors of these personnel. Guidance for the basic methodology and the construction of the questionnaires was obtained from Army Regulation 600-46 regarding Attitude and Opinion Surveys and Department of the Army Pamphlet 325-5 entitled Federal Statistical Standards. The procedures and survey instruments used in this effort were approved by the Occupational Survey Control Branch, MILPERCEN, HQ, DA, on 12 September 1979 and survey control number DAPC-MSP-S-79-38 was assigned.

c. Procedure.

(1) Subjects.

(a) Graduates. Fifty percent of the graduates of classes 79-24 through 80-5 were randomly sampled during the two quarters of the survey effort. Class 79-40 was not addressed due to an administrative error. National Guard and Reserve personnel were excluded from the sampling because the program's intent was to obtain data based upon full-time field unit experience. Graduates reassigned from the training

environment to Air Traffic Control positions at Fort Rucker were excluded for the same reason. Questionnaires were mailed to sixty-six graduates. Thirty-eight were completed and returned.

(b) Commanders. A commander's questionnaire was forwarded to each unit that had received graduates from classes 79-24 through 80-5. Twenty-five units were surveyed. Out of these units, seventeen commanders completed and returned questionnaires.

(2) Survey Instruments.

(a) Graduate Questionnaires.

1 The graduate questionnaires were divided into three sections. Section one sought data relating to each respondent's background and experience. There were four items in this section. Section two was comprised of a list of 87 tasks provided by the Directorate of Training Developments at Fort Rucker. These represented the tasks addressed by the 93H program of instruction and served as the primary focus for this phase of the evaluation. Training and performance data specific to each task was requested in this section. The third section sought general comments and information regarding additional tasks that should be addressed by the Aviation Center instruction.

2 The graduate questionnaire effort was divided into two quarterly (two-three month) segments. Suspected problems or problem

areas identified from the first quarter's graduate data were subject to verification using the second quarter's graduate data and the ratings from unit commanders. This procedure was adopted to place emphasis on the consistency of ratings across time and samples. The interest in consistency was aimed at reducing the probability that problems would be identified that might in reality be based on sample specific data or on artifacts independent of the quality of training.

3 A split panel technique was used to help control for the effects of item order on the ratings. Thus, there were two versions of the questionnaire developed and referred to as version A and version B. Both versions contained the same items, but had different arrangements of the tasks listed in section two. The task list was, for the sake of describing the different arrangements, divided into four equal segments. If the segments in version A could be described as being in the numerical sequence 1, 2, 3, and 4 then the arrangement of version B would appear as 2, 1, 4, and 3. Version A was used to obtain the first quarter's data and version B was used during the second quarter.

4 The response scale developed for section two of the graduate questionnaires was designed to encourage training adequacy to be rated based upon the job requirements encountered by the graduates. If a graduate responded that he or she was overtrained, adequately trained, or undertrained it was intended that the response be relevant to the unit's needs rather than reflect a quality judgement of the instruction alone. Therefore, if a graduate had not yet performed a

task, an appropriate response choice was provided so the answer would not be based upon factors unrelated to job requirements in the units. Given the short time span from their graduations, such responses were expected. It was intended, however, that any task with a large proportion of such ratings would be subject to follow-on investigation much the same as for ratings of undertraining. A copy of the graduate questionnaire (version A) is included in Appendix A.

(b) Commander's Questionnaire.

1 The commander's questionnaire was developed to support the process for identifying suspected problem areas. The data obtained from the commanders were intended to serve in the verification process of the suspect tasks derived from the graduate data.

2 The questionnaire was divided into two sections. The first section addressed the tasks taught at the school. Unlike the graduate version of the questionnaire, the commander's version did not include the common soldier tasks, i.e., those relating to first aid and nuclear, biological, and chemical warfare. These tasks were excluded to keep the questionnaire as short as possible and still maintain its integrity in terms of MOS specific tasks. It was felt that because of the commanders' workload, this shorter version of the questionnaire would encourage a higher return rate with more conscientious responses. The second section provided the commanders with an opportunity to make general comments and touch on areas not addressed by the questionnaire.

3 The response scale used in the first section of the commander's questionnaire was designed to obtain ratings relating to training adequacy in terms of how well prepared the graduate was to perform each task. As with the scale in the graduate questionnaire, the ratings were to be based upon actual performance in the unit. If the task was not a unit mission, a response choice to that effect was provided. For situations where a commander had not observed performance of the task, a response was provided for this option as well. A copy of the Commander's Questionnaire is included in Appendix B.

(3) Method.

(a) Questionnaires were mailed to the graduates five months after they had completed the 93H program of instruction at Fort Rucker. The time frame was considered crucial for the effort. A survey too soon after the graduates had arrived in their units would likely present a situation where they would not have much work experience and would provide minimal data, at best. Waiting too long could present a graduate with so many job related experiences that the aviation training program could be but a faint memory. Experience with previous evaluation efforts helped establish the time frame that was used.

(b) The first quarter's graduate questionnaire mailing commenced on 1 December 1979 with class 79-24. Version A of the questionnaire was used. The program was on schedule until 7 December 1979 when the Department of the Army Military Personnel Center suspended all surveys to the field. The moratorium was lifted on 10 March 1980 and

questionnaires resumed. The final mailing for the first quarter was on 11 March 1980 to class 79-39 and all subsequent classes missed due to the moratorium. The second quarter's mailing of the graduate questionnaires began 19 March 1980. Version B was used during this quarter. Classes 79-41 through 80-5 were surveyed. All graduate questionnaires were mailed through the graduates' commanders with a twenty-one day suspense. If a graduate failed to respond in 30 days, a follow-up questionnaire was mailed directly to the graduate with a 14 day suspense.

(c) At the completion of the second quarter's mailings to the graduates, a list of all unit addresses was compiled for 93H students who graduated from classes 79-24 through 80-5. On June 30, 1980 a commander's questionnaire was mailed to each of the units on the list. The commanders were requested to complete and return the questionnaires within 21 days. If after 30 days a commander had not responded, a second questionnaire was mailed with a 14 day suspense. Seventeen surveys were returned and analysis of these data began in September of 1980.

d. Analysis and Findings - Quarter One.

(1) Responses to sections I and II of the questionnaire were translated from the returned answer sheets to IBM cards by optical scanning device. These data were tabulated through the use of the cross-tabulation program of the Statistical Package for the Social Sciences (SPSS).² The SPSS cross-tabulation provided a frequency breakdown

² Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K., & Brent, D.H., Statistical Package for the Social Sciences, McGraw-Hill, 1975.

of the ratings per category (i.e., not trained, undertrained, adequately trained, overtrained and not performed) for each questionnaire item.

(2) Two general points of consideration were established in the first quarter's methodology for selecting a questionnaire item that might represent a problem area. The first point was the extent to which a task was rated outside an acceptable range (defined below). The second consideration was the relative level of importance of the task.

(a) To accommodate the first point, an educational specialist and a psychologist independently reviewed the tabulated responses for the questionnaire items. Selection of possible problem tasks was, for the most part, subjective. Initially each reviewer studied the data independently. Primary considerations for identifying items outside an acceptable range were:

1 Tasks showing high proportions of combined undertrained and not trained ratings.

2 Tasks showing high proportions of overtrained ratings.

3 A high proportion of ratings indicating graduates not having performed a task at their units.

(b) Following their independent screenings of the cross-tabulation, the reviewers compared the lists of suspect tasks each had selected. Although the reviewers had used independent schema for selecting

these tasks, there was very little difference between the two lists. Differences occurred mainly in the number of tasks selected for inclusion in each problem category (e.g., undertrained/not performed). In all cases this amounted to no more than two or three tasks. The rationale underlying these specific differences was discussed between reviewers and resolved. A preliminary list was then compiled of those tasks with ratings outside the reviewers' established range of acceptability.

(c) In order to address the second point of consideration, i.e., the relative level of importance of the item or task, it was necessary to obtain the assistance of subject matter experts. Two Sergeants-First-Class Air Traffic Controllers (Tower) were consulted. A round table discussion was conducted which included the two subject matter experts and the two original reviewers (the educational specialist and the psychologist). During a review of the suspect tasks the two experienced controllers were asked to comment on each task's relative importance, the manner in which the training of the tasks was typically accomplished, the level of proficiency expected in the task by the field and the reasons why a task might have been rated as it was. The information gleaned from this discussion was used to further refine the original list of suspect tasks. The resulting list provided the first quarter's collection of possible problem areas.

e. Analysis and Findings - Quarter Two.

(1) The same procedures used for processing the first quarter's graduate data were followed with the responses collected for the second quarter. Answer sheets were optically scanned and data was recorded on

IBM cards. The responses for each task were summarized in tables using the cross-tabulation function of SPSS. As before, the focus was on the extent to which a task received ratings other than "adequately trained." In addition to identifying tasks rated outside a range of acceptability, the second quarter effort was aimed at cross checking the first quarter's suspect tasks for consistency across the two samples. The interest at this point was to determine how well the suspect areas held up over time and from version A to version B of the questionnaire.

(2) The tabulated responses for each of the tasks in the second version of the questionnaire were also independently analyzed by the two original reviewers, the educational specialist and the psychologist. The same criteria were used for compiling suspect tasks as were used for the previous quarter's data.

(3) Following their independent screenings of the cross-tabulation tables, the reviewers compared the lists of suspect tasks each had selected. As was the case for the first sample, the agreement between the reviewers' lists was very high. The only difference was an additional task on one of the lists. This situation was discussed between the reviewers and a final list acceptable to both resulted. Only at this point were the task statements listed. Previously, during the second quarter's review, only the numbers of the tasks and the frequency distributions were looked at. Since the order of the tasks differed from the first quarter, there was no direct means of cross-referencing across quarters during the data analysis. This allowed the second list of suspect tasks to be compiled without influence from the first list of tasks.

(4) The next step in the graduate questionnaire analysis required a comparison of second quarter suspect tasks with the list compiled from the first quarter's data. This procedure was also accomplished by the educational specialist and the psychologist. The tasks that appeared in both the first quarter's and the second quarter's lists were deemed to be validly perceived as problem areas by 93H graduates. Tasks not appearing on both lists were categorized as sample specific phenomena unrepresentative of the graduate population and were removed from consideration.

(5) The second quarter analysis of the 93H graduate questionnaire responses verified fifteen of the suspect tasks identified by the first quarter analysis. The tasks are listed below and are organized according to the basis for each task's selection. First and second quarter cross-tabulations for these tasks are summarized in Appendix C.

(a) Tasks indicating undertraining at USAAVNC:

- 1 Report items requiring NOTAMS.
- 2 Decode/relay NOTAMS.
- 3 Operate airport lighting aids.
- 4 Operate general airport lighting aids.
- 5 Operate visual guidance airport lighting systems.

6 Decontaminate self.

7 Decontaminate individual equipment.

8 Put on and wear protective clothing.

9 Apply mask to mouth resuscitation to a chemical agent casualty.

10 Give back pressure armlift artificial resuscitation to a chemical agent casualty.

11 Issue separation between IFR departures, non-radar.

12 Issue separation between IFR arrivals, non-radar.

13 Handle emergency.

(b) There were two tasks indicating both non-performance in the field and undertraining in AIT.

1 Perform operating procedure, AN/TSQ - 70A.

2 Prevent aircraft entering ILS critical areas.

f. Commander's Questionnaire Data Analysis.

(1) The responses obtained from the seventeen commanders were organized into cross-tabulation tables and reviewed based upon two criteria.

(a) High proportions of task ratings in the "not unit mission" category.

(b) High proportions of task ratings in the "not prepared" category.

(2) The analysis of these cross-tabulations by the two reviewers yielded a list of tasks that contained more than half the tasks in the questionnaire. Attempts to reduce the size of the list by increasing the stringency of the above criteria had no marked effect on the size of the list. The commanders were apparently using very stringent criteria themselves when making their ratings.

(3) A comparison of the final graduate suspect task list and the list of tasks gleaned from the commanders' data supported the tasks selected from the two quarters of graduate questionnaire data. Commanders ratings for the suspect tasks are summarized in Appendix D.

3. PHASE II - FIELD FOLLOW-ON:

a. Purpose. To subject suspected problem areas in training to further in-depth evaluation entailing the highest level of objectivity permitted by available resources.

b. Background.

(1) According to the guidance provided by the Instructional

Systems Development (ISD) model,³ the conclusions of an external evaluation should, in the ideal sense, be based upon direct measures of actual job performance. Initially, the large number of tasks addressed by the 93H program of instruction rendered this course of action impracticable. The questionnaire approach was designed to glean from the large number of tasks a smaller, more manageable subset of suspected problem areas so that some form of direct performance measurement could be accomplished. Unfortunately, at the onset of phase II it was clear that a shortage of resources rendered such measurement unattainable for this evaluation effort. It was decided that the next best course of action would be to conduct field interviews relating to the suspect task areas.

c. Procedure.

(1) Interview Format.

(a) A systematic interview⁴ approach was chosen as the format that would cover the proper range of questions for each task and at the same time maintain the consistency required of the interviewer across the population sample being interviewed. In short, the systematic interview provided a procedure that combined the planning of the structured interview with the flexibility of the unstructured interview.

³ TRADOC Pamphlet 350-30, Interservice Procedures for Instructional Systems Development, Department of the Army, August 1975.

⁴ Seigel, A.I., Beryman, B.A., Federman, P., & Sellman, W.S., Some techniques for the evaluation of technical training courses and students (AFHRL-TR-72-15). Lowry AFB, Co.: Technical Training Division, Air Force Human Resources Laboratory, February 1972.

(b) Preparation for writing the interview guide sheets entailed an in-depth study of the suspect tasks. Each suspect task was cross-referenced with the 93H Soldier's Manual, Commander's Guide, and the Aviation Center Program of Instruction (POI). A list of questions was compiled that related to necessary information not provided by these references. A meeting was held between a Directorate of Evaluation and Standardization (DES) subject matter expert and Directorate of Training Developments (DTD), Course Development Division (CDD), personnel regarding the 93H Program of Instruction and the suspect tasks. The major area of interest pertained to the intent of the instructional program in regard to the tasks. The aim of the meeting was to identify as clearly as possible the level of proficiency expected of the graduates in each suspect area. This information was necessary both to assist the wording of the interview questions and to aid in the final analysis of the data resulting from the interviews. Following the meeting, a summary of the comments regarding each task was compiled and sent to the Course Development Division attendees. They reviewed the comments for accuracy and added additional information where necessary.

(c) Interview guides were developed for both graduate interviews and interviews with unit supervisors. The original fifteen suspect tasks were modified into eleven suspect task areas for the interviews. The systematized approach was realized by using a flow-charting technique for question and response contingencies in each task area. The graduate and supervisor interview guides are shown in Annex I and Annex II of Appendix E, respectively.

(2) Subjects. Graduates who had completed their AIT training five to nine months previously served as the subjects for the interviews. The immediate supervisors of each of these individuals were also interviewed. The size of the sample was dictated by time and resource constraints. A total of nine graduates and four supervisors were interviewed.

(3) Method.

(a) Available resources permitted the planning of two interview trips to the field. A list of ATC field units was compiled that included a frequency count of 93H students assigned to each unit who had graduated within the above mentioned time frame. The Army post that had received the largest number of graduates was chosen as the sight of the initial interview trip. One month later another list of graduates in the five to nine month time frame was compiled. The post that had been previously visited was not included in consideration. The post with the largest number of graduates on this list was selected for the second and final interview trip. Three days were spent on each of these visits.

(b) Both fixed base and tactical units at each of the posts were visited. Graduates and supervisors were interviewed in privacy, one at a time by two interviewers. The use of two interviewers was found to be advantageous. One interviewer addressed the graduate or supervisor while the other concentrated on taking notes. The interviewers usually switched roles on alternate questions. This procedure kept the

interview going at a comfortable pace, allowed a greater deal of eye contact between interviewer and interviewee, and permitted more information to be recorded than would have otherwise been expected.

(c) Interviewees (and unit officials) were told that the information being requested was strictly for evaluation of 93H training program effectiveness. It was explained that no reference to them personally or to their units would be made in the report that would follow the interviews. All were informed that the evaluation was ultimately aimed at providing the field with an effective product from the school.

d. Findings. The results of the interviews are summarized below and are organized according to: (1) The task area addressed; (2) Survey indications concluded from two quarters' questionnaire data; (3) Background regarding the task area; (4) The interview summary; and (5) Conclusions regarding the suspected problem task or tasks.

(1) Task: Notices to Airmen (NOTAM).

(a) Survey Indications: Undertraining in Advanced Individual Training (AIT).

(b) Background: Specific tasks that were suspect were, "Report items requiring NOTAMs" and "Decode/Relay NOTAMs." Task number for both tasks is 011-145-1023 and can be found on page 2-174 of the

Soldier's Manual.⁵ Both are taught to Soldier's Manual standards. The tasks are common to both 93H and 93J MOSs.

(c) Interview Summary: Of the nine experienced graduates interviewed, two stated they had not performed NOTAM related tasks since their graduation from AIT. The remaining seven said they did perform NOTAM tasks. Of these, only one performed the tasks on a regular basis. The other six said their performance was limited to relaying NOTAMs. All seven felt they had been adequately prepared in their ATC training at Fort Rucker. When asked if newly assigned graduates had much opportunity to perform NOTAM tasks within their first four months in the unit (the time frame covered by the Phase I questionnaire), three immediate supervisors of these graduates stated they did not. The tactical orientation of their units was given as the reason. It was stated, however, that NOTAMs were included in the graduates' facility training. One supervisor said his new personnel (graduates) did perform the task within their first four months in the unit, that extra training was required and that this was primarily directed at getting the graduates up to speed in "remembering what a NOTAM is."

(d) Conclusions: The interviews indicated that the NOTAM tasks were, on the whole, not a major area of concern. They were not performed with any great frequency and when they were performed the training received at Fort Rucker was adequate preparation. The survey indications, therefore, were not supported by the interview data.

⁵ FM 1-93H 1/2, Soldier's Manual Air Traffic Control (ATC) Tower Operator, Skill Level 1/2, MOS 93H, Department of the Army, Dec 1979.

(2) Task: Separation Between Instrument Flight Rules (IFR) Departures and Arrivals, Non-Radar.

(a) Survey Indications: Undertraining in AIT.

(b) Background: This task area was addressed in the interview as two separate items, one pertaining to arrivals and the other to departures. Interview responses were identical to both so for the sake of simplicity they are reported here as one area. The task numbers are 011-145-1041 and 011-145-1042 and can be found on pages 2-213 and 2-225 of the Soldier's Manual, respectively. Both are taught to Soldier's Manual standards.

(c) Interview Summary: None of the graduates interviewed had performed this task in the field. One supervisor said his newly assigned graduates performed this task, but needed extra training to overcome a lack of experience that was manifested in what he called "mike fright." A slight inconsistency was evident here. The graduates he was referring to were among those who said they had not performed this type task. The remaining supervisors stated that the graduates did not perform the task within their first four months in the unit. The non-performance was attributed to either lack of IFR traffic or the graduates not being at the stage in their facility training where this would be performed.

(d) Conclusions: The graduate surveys instructed the graduates to rate the adequacy of their training based upon the experience

they had performing the tasks in their units. Since the interview data indicated that there was little if any opportunity to perform the separation task within the time frame addressed, there appears to be no justification for the high proportion of ratings of inadequate training found in the survey. Unless this task area is addressed in training to provide fundamental instruction for later tasks, there may be a real problem in derogation of the skills needed for this task due to non-performance. If this does occur and the unit's facility training is compelled to reestablish the skills, it may be worthwhile to reconsider the value of training the task at the Army Aviation Center.

(3) Task: Prevent Aircraft Entering Instrument Landing System (ILS) Critical Areas.

(a) Survey Indications: Undertraining in AIT and a high proportion of non-performance in the field.

(b) Background: Task number is 011-142-1034 and is described on page 2-194 of the Soldier's Manual. The task relates to the control of taxiing aircraft. The intent of the Fort Rucker program of instruction is to teach the task to Soldier's Manual standards.

(c) Interview Summary: All graduates interviewed stated they had not had an opportunity to perform this task in their units. The supervisors confirmed this information stating that their units did not work with ILS.

(d) Conclusions: The interviews did not find any data that could support the survey indications of undertraining. The data do, however, merit further attention in regard to non-performance. The value of training the previous task area (Separation Between IFR Departures/ Arrivals, Non-Radar) was questioned because graduates apparently were not performing it until late in their facility training. This suggested serious deterioration of the knowledge gained from Aviation Center training before it could ever be applied. The interview data raise similar issue regarding the value of training the above task. Unlike the previous task, which is eventually addressed on the job, Preventing aircraft from entering ILS critical areas is a task that has utility only at facilities equipped for ILS approaches. The evidence provided by the interviews, truncated as they might have been, casts some doubt on the inclusion of the ILS Critical Area task in the POI. It would be beneficial to determine if the task should be reserved for training at ILS equipped facilities. Unless this task provides fundamental information for subsequent training addressed in the POI, it is necessary to consider two points. First is the proportion of ILS versus non-ILS aviation facilities. Second is the relative POI time dedicated to training this task. A large proportion of non-ILS facilities and a high proportion of time spent instructing the task would indicate a need for change.

(4) Task: Airport Lighting Aids.

(a) Survey Indications: Undertraining in AIT.

(b) Background: Task number is 011-142-1037 and can be found on page 2-200 of the 93H Soldier's Manual. Survey tasks cited as

suspect were, "Operate airport light aids," "Operate general airport lighting aids," and "Operate visual guidance airport lighting systems." These tasks are taught to Soldier's Manual standards, however, they are covered only by verbal instruction. There is no practical exercise conducted.

(c) Interview Summary: Only one of the graduates interviewed said he had not had much opportunity to perform these tasks. The remainder stated they did in the form of tactical lighting, general airport lighting, maltese crosses and beacons. Two of these individuals did not feel they had been adequately prepared, indicating a need for more tactical training. The remaining six felt they had been properly prepared, finding the tasks simple enough to present no problem. The supervisors' responses did not indicate any problems relating to lighting tasks. Two stated the graduates did not have much opportunity to perform in this task area (within their first four months in the unit) and when they did, there were no problems because there "wasn't much to deal with" and all it really involved was turning switches on or off. The other two supervisors said their graduates did have considerable opportunity to perform the task. These individuals also found graduate performance to be adequate and that no further training was required in the lighting tasks.

(d) Conclusions: With the exception of two graduates who felt they needed more training in tactical lighting, all other interviewees indicated satisfaction with the adequacy of the training conducted at Fort Rucker. The undertraining indicated by the survey data was not supported by the interview data.

(5) Task: Handle Emergency.

(a) Survey Indications: Undertraining in AIT.

(b) Background: The number is 011-145-1043 and reference can be found to it in the Soldier's Manual on page 2-232. Training is intended to be to Soldier's Manual standards.

(c) Interview Summary: Graduates were asked if they had handled emergencies since graduating from AIT. They were requested to consider both actual and simulated situations. Two said they had not performed in either situation. The remaining seven stated they had performed such tasks, all of which were simulated emergencies. Four of these individuals felt they had been adequately prepared. The remaining three did not feel they had been adequately prepared citing as their greatest weaknesses: (1) knowing what constitutes an emergency, (2) not having had any training at the Aviation Center and (3) not being prepared for anything beyond knowing the crashphone and phraseology required. When asked about their current level of confidence in handling emergencies, six expressed confidence while the remaining three said they were not confident. All four supervisors interviewed said the graduates had performed in this task area within their first four months in the unit. They indicated that extra training was required to bring the graduates up to acceptable proficiency on this task. Major weaknesses cited were: (1) not having a set procedure to follow, (2) overall unfamiliarity with the task, (3) nervousness and, (4) separating traffic and blanket broadcasts.

(d) Conclusions: There is a moderate amount of agreement between the questionnaire results and the information obtained from the interviews. While many of the weaknesses noted appear to be related to inexperience, there are indications, especially from the graduate's responses, that a relevant portion of the problem is due to the graduates not having command of the necessary basic procedures. Since the program of instruction is aimed at training this task to Soldier's Manual standards there is enough evidence to merit a follow-on internal look at the emergency assistance instruction being provided at the Aviation Center.

(6) Task: Operating Procedure Aircraft Control Central,
AN/TSQ-70A.

(a) Survey Indications: High proportion of non-performance in the field and undertraining in AIT.

(b) Background: Task number is 011-142-1055 can be found in the 93H Soldiers Manual on page 2-262. The AN/TSQ-70A is a transportable facility for controlling air traffic and is designed to be used in a tactical environment. A major consideration in looking into this task came from subject matter expert opinion that the non-performance might be due to nonavailability of this equipment in the field units. The task is taught to Soldier Manual standards.

(c) Interview Summary: The four graduates in the interview sample who were assigned to fixed base units had not used this equipment since AIT. The five graduates in the sample who were assigned to tactical

units had used it a great deal. Four of the individuals in the tactical units did not feel they were adequately trained on the aircraft control central at Fort Rucker. When first tasked to use this equipment in the units, these graduates found their greatest weakness was the lack of any previous hands-on experience during training. The same four of the five graduates in tactical units stated that after five to nine months field experience they had a great deal of confidence in their present ability to operate the AN/TSQ-70A. Three of the four supervisors interviewed said they had this equipment in their units and that recent graduates did get the opportunity to operate it. All three stated they had problems with the graduates' initial performance of this task. Two said the predominant problem was in setting up and taking down the equipment, which relates back to the graduates' identification of hands-on experience as training they felt would have been helpful. One supervisor stated that the graduates' predominant problem was in remembering to ground the equipment.

(d) Conclusions: The interviews indicate that the non-performance problem surfaced in the questionnaire analysis most likely reflected the functional differences between tactical and fixed base units. The phase I contention that the units did not have the equipment was determined not to be a problem in the field. The fixed base units did not have the equipment, but had no requirement for it. The tactical units did in accordance with their requirement have the equipment. Misgivings were expressed by personnel in tactical units concerning the lack of practical training on the task at the Aviation Center. This problem was also indicated by the questionnaire analyses, and deserves further attention. Similar references to this problem were noted in

reports made by the Aviation Center Training Analysis and Assistance Team (ACTAAT) following evaluation of aviation units in Europe,⁶ Korea,⁷ and Fort Lewis, Washington.⁸

(7) Task: Decontaminate Self and Individual Equipment.

(a) Survey Indications: Undertraining in AIT.

(b) Background: The questionnaire addressed this task area as two separate tasks, "Decontaminate self" and "Decontaminate individual equipment." Task numbers are 031-503-1007 and 031-503-1008 respectively and can be found on pages 2-83 and 2-88 of the Soldier's Manual. Both were similar enough to be combined for the sake of the interview. The tasks are common soldier tasks relating to Nuclear, Biological and Chemical activities. These tasks are not taught to Soldier's Manual standards at the Aviation Center. The instruction is presented through Training Extension Course (TEC) tapes at the Aviation Learning Center. There is no practical exercise. It was explained that the original training kits for decontamination were a health hazard. New ones have been ordered. When sufficient quantities arrive, the training will be conducted to Soldier's Manual standards.

⁶ Aviation Center Training Analysis & Assistance Team: USAREUR Report, US Army Aviation Center, Ft Rucker, AL, January 1981.

⁷ Aviation Center Training Analysis & Assistance Team: Korea WESTCOM Report, US Army Aviation Center, Ft Rucker, AL, March 1981.

⁸ Aviation Center Training Analysis & Assistance Team: Fort Lewis Report, US Army Aviation Center, Ft Rucker, AL, February 1981.

(c) Interview Summary: Five of the nine graduates sampled stated they had received refresher training on this task. The unit training was confined to lectures and TEC tapes as at the Aviation Center. No practical experience was provided. When asked about their confidence in their ability to perform this task during an actual chemical attack, four expressed no confidence at all, one was somewhat confident, and four were very confident. The four very confident graduates attributed their feeling to either NBC school attendance or military experience prior to ATC training. One supervisor indicated that training was not conducted on the decontamination tasks because his unit did not have the proper equipment. The three remaining supervisors said their units did conduct training on the tasks but they were not confident in the graduates' ability to perform them. Lack of practical experience was indicated as the basis for their opinions.

(d) Conclusions. The interviews indicated that unit performance in this task area is very limited. Survey indications of undertraining do not appear to be supported in light of the units' needs. However, this and the other common soldier tasks in the 93H POI are prescribed by Training and Doctrine Command (TRADOC) policy. If training is not being conducted to Soldier's Manual standards because of a shortage of safe decontamination kits, it may be beneficial to monitor this problem until a solution is reached.

(8) Task: Put On and Wear Protective Clothing.

(a) Survey indications: Undertraining in AIT.

(b) Background: This is task number 031-503-1015 and can be found on page 2-94 of the Soldier's Manual. Aviation Center training is to Soldier's Manual standards. Training Extension Course (TEC) tapes are used for initial instruction. A practical exercise is encountered by the students in the tactical phase of their course.

(c) Interview Summary: Two of the interviewed graduates had received refresher training in their new units in the form of a practical exercise with protective clothing. The remaining seven had not performed this task since leaving Fort Rucker. When asked about their confidence in performing this task under actual chemical attack, three were not confident, two were somewhat confident and four were very confident. Of these four, one attributed his confidence to previous experience while the remaining three attributed it to practical training experience either at their present units or at Fort Rucker. Three of the supervisors said they had not yet conducted unit training on this task because they had just received the equipment and had not had time to train with it. The one supervisor who said his unit did not conduct training also stated that he was confident in the new graduates' ability to perform the task. He also felt the graduates had been well trained on this task in school.

(d) Conclusions: There was no evidence from the interviews that the graduates were unprepared to perform this task at the level of proficiency demanded by their units. The contention of undertraining derived from the survey data is, therefore, not substantiated.

(9) Task: Apply Mask-to-Mouth Resuscitation to a Chemical Agent Casualty.

(a) Survey Indications: Undertraining in AIT.

(b) Background: This is task number 081-831-1014 and can be found on page 2-132 of the Soldier's Manual. This task is not taught to Soldier's Manual standards. There is no practical exercise because of sanitary considerations. Training is conducted through Training Extension Course tapes at the Aviation Learning Center.

(c) Interview Summary: Only one of the graduates interviewed had been exposed to this task since graduation. In this instance the task was covered in a lecture during unit NBC training. The remaining eight graduates had not had any experience with mask-to-mouth resuscitation since their completion of training at Fort Rucker. In regard to their ability to perform this task under actual chemical conditions, four graduates stated they were not confident. The remaining five said they were very confident. The confident graduates based their responses on training or experience unrelated to either their training at Fort Rucker or the training in their units. These individuals had either attended NBC school or had infantry unit experience in Korea or Germany prior to their training in the 93H occupational specialty. Three supervisors said unit training was not conducted on this task because they did not have the equipment (They had M24 protective masks). These same individuals stated they were not confident in the recent graduates' ability to perform this task. The fourth supervisor said that unit training had

been conducted on mask-to-mouth resuscitation, but that recently the unit had replaced the M17A1 mask with the M24 mask, which does not have the resuscitation function.

(d) Conclusions: Confidence in performing the task was expressed only by those graduates who had previous experience. In spite of this, the problem evident from the interview data was not necessarily one of undertraining, as the survey indicated. The most obvious problem relates to school training on equipment that is not issued to the units. All personnel interviewed had M24 protective masks. According to Table of Organization and Equipment (TOE) 01-227H700-ATC Company (Forward), the M24 is standard issue for Air Traffic Control personnel. The M24 allows clearer voice transmissions over a radio. It does not have a resuscitation function. The Soldier's Manual and the training provided at the Aviation Center both relate specifically to the M17A1 protective mask which is equipped for mask-to-mouth operation. The discrepancy between equipment and training deserves further clarification in terms of the cost effectiveness of time spent training M17A1 mask related skills to personnel who will be equipped with the M24 mask.

(10) Task: Back Pressure Arm Lift Artificial Resuscitation to a Chemical Agent Casualty.

(a) Survey Indications: Undertraining in AIT.

(b) Background: Task number is 081-831-1015 and is described on page 2-137 of the 93H Soldier's Manual. Instruction at

Aviation Center is conducted through the use of a Training Extension Course tape followed by a practical exercise in the tactical phase of the program. The task is intended to be taught to Soldier's Manual standards.

(c) Interview Summary: None of the nine graduates interviewed had been exposed to this task since leaving Fort Rucker. Seven of these individuals said they had no confidence in their ability to perform this task under actual chemical conditions. Two graduates expressed confidence that they could successfully perform the back pressure armlift maneuver. One attributed his confidence to previous military experience, while the other graduate specified the training that was provided in basic training. The latter individual had not, in spite of his confidence, ever had any practical experience with the task, either in actual or simulated conditions. One supervisor stated that his unit conducted training on this task. He was not confident in the new graduates' ability to perform this procedure. Three supervisors said unit training was not conducted on this task either because of too many other commitments or because of the lack of training material.

(d) Conclusions: Based upon performance requirements in the units visited (or more accurately, the lack of performance requirements specific to this resuscitation task), Aviation Center training is sufficient. The questionnaire indications of undertraining are not substantiated by the follow-on data.

4. GENERAL OBSERVATIONS:

a. As the task specific interview data were collected, the interview team also obtained general training related comments from graduates, supervisors and unit command personnel in the air traffic control units visited. This information plus observations made by the interviewers serving as the "outsiders looking in" provided information that was consistent enough in two areas to be deemed worth documenting. Neither area of concern was evident during the first phase of the evaluation. This can be attributed in part to their not being task specific. During the on-site visits, however, there were enough references and observations relating to these areas that it was felt they should be addressed as potential problems worth monitoring.

b. The first area of concern relates to the unique characteristics that differentiate fixed base unit operations from tactical unit operations.

(1) Graduates assigned to the tactical units visited, all expressed a need for more training in the tactical portion of the Aviation Center training program. Similar statements were also made by their supervisors. The common desire among these individuals was for increased hands-on training in tactical equipment assembly, disassembly, and operation.

(2) The graduates interviewed in fixed base units had not had contact with tactical ATC equipment. Most had difficulty recalling the

equipment when questioned about it. One graduate in a fixed base unit stated that 85 to 90 percent of his training was excellent, had been applied, and paralleled the needs of his unit. The impression of the interview team was that this statement typified the attitude of the graduates serving in fixed base facilities whereas the graduates in the tactical units felt they should have had more job relevant instruction.

(3) A potential training problem rests in the proportion of new 93H graduates who are being assigned to tactical ATC units. Review of graduate assignments for a recent 14 month sample (July 1979 to September 1980) shows 119 graduates going to fixed base units and 46 going to tactical units. The total sample, however, also includes graduates who are reassigned to Fort Rucker to ATC positions that are dedicated heavily to the support of Aviation Center training activities. If the Fort Rucker assignments are subtracted from the sample, the figures show a total of 90 graduates assigned to field units. Thirty-nine of these graduates were assigned to tactical units and 51 were assigned to fixed base units. (See Table 1, below.)

TABLE 1 - 93H GRADUATE ASSIGNMENT

	TOTAL		FIELD UNITS ONLY	
	<u>FIXED BASE</u>	<u>TACTICAL</u>	<u>FIXED BASE</u>	<u>TACTICAL</u>
N -	119	46	51	39
% -	72	28	57	43

In terms of serving the field, these data show the current proportion of tactical versus fixed base assignments to be approaching a one-to-one ratio. Questions relevant to this area of concern are:

(a) Is the proportion of institutional training that addresses tactical operations adequate?

(b) What is the probability that a recent graduate initially assigned to a fixed base unit will eventually be assigned to a tactical unit, or vice versa?

(c) Would it be more advantageous to set up tactical and fixed base tracks at some point in the training program in which students would be prepared to specialize in either of these two areas?

c. The second area of concern relates to the large number of graduates who begin their first ATC assignments as NCOs.

(1) This situation was first noted as a potential problem during the initial stages of the interview effort. Personnel who were selected to be interviewed as recent graduates were also identified by their units as supervisors. According to the 93H POI, the course is designed to train MOS 93H10. These graduates were, however, filling 93H20 and 93H30 slots in their units. As phase II progressed, an increasing number of comments from the units were aimed at situations where E-5 and E-6 personnel fresh from school were supervising personnel who had more job related ATC experience.

(2) Upon completion of the Phase II interviews, a list of graduates was compiled by rank, covering the period of June, 1979 to September 1980. These data are shown in Table 2 below.

TABLE 2 - 93H GRADUATES BY RANK

	<u>SSG</u>	<u>SGT</u>	<u>SP5</u>	<u>CPL</u>	<u>SP4</u>	<u>PFC</u>	<u>PV2</u>	<u>PVT</u>
N =	3	59	18	3	70	10	10	49
Z =	01	27	08	01	32	05	05	22

Students graduating as E-5s and E-6s comprise thirty-six percent of the total 222 graduates in this sample. Individuals ranked either as Corporals or Specialists Fourth Class represent thirty-three percent of the total. Questions relevant to this area of concern are:

(a) Is the effectiveness of ATC units being reduced by the high proportions of individuals filling 93H20 or 93H30 slots who have had little or no practical experience in 93H10 slots?

(b) How is the preponderance of ATC graduates ranked E-4 and above (69%) effecting the promotion system?, i.e., Are E-4s with full MOS experience losing out on promotions because of the large numbers of E-5s being graduated or because of the competition from E-4 graduates?

(c) How is this effecting E-5s and E-6s with full MOS experience?

(d) How has this situation effected morale, motivation or retention among experienced ATC personnel who started "at the bottom?"

5. DISCUSSION:

a. The evaluation of the Air Traffic Control Tower Operator Course was directed toward the measurement of training effectiveness in terms of the needs of the field. During the initial stages of the evaluation, over half the tasks included in the questionnaires were suspect. After successive subject matter expert reviews, split-panel verifications and on-site interviews, the original list of suspect tasks evolved into a collection of six tasks or task areas which displayed consistent evidence of training related problems. They are summarized below:

(1) Separation of IFR departures and arrivals in a non-radar environment. Field interviews identified the problem as one of delayed performance (more than five months after graduation) which resulted in learning derogation. Advantages of making this a unit training task should be reviewed.

(2) Prevent aircraft entering ILS critical areas. The problem category for this task was non-performance. Many ATC facilities are not equipped for ILS approaches. The proportion of facilities equipped for ILS to those not equipped is a key factor for review. The advantages of making this a unit training task deserve consideration.

(3) Handling emergencies. The evaluation indicated that graduates have not mastered the basic procedures underlying this task. Institutional training should be reviewed.

(4) Decontaminate self and individual equipment. Lack of decontamination kits has prevented this task from being taught to Soldier's Manual standards. Equipment problem should be monitored.

(5) Mask-to-mouth resuscitation to a chemical agent casualty. The problem relates to institutional training with a protective mask (M17A1) that is not used by ATC field units. The field units are currently equipped with M24 protective masks.

(6) Operating procedure for the aircraft control central, AN/TSQ-70A. Lack of practical experience during Aviation Center training was identified as the problem related to this task. The problem is specific to the tactical ATC environment. Institutional training should be reviewed.

b. As with so many other reports of this nature, the findings seem to be intent upon discovering fault. This negative tone should not, however, be construed as the final word of the evaluation. It must be emphasized that only six tasks of eighty-seven were found to have problems. Two areas of concern were discussed only because they have the potential to become problems. The remaining majority of the tasks were not found to have any associated training problems. On the whole, the data indicate that the tower operator course is doing an excellent job of producing 93H10 graduates and accommodating the needs of ATC units in the field.

APPENDIX A

GRADUATE QUESTIONNAIRE (VERSION A)

**AIR TRAFFIC CONTROL TOWER OPERATOR (93H)
GRADUATE QUESTIONNAIRE**

**DIRECTORATE OF EVALUATION AND STANDARDIZATION
UNITED STATES ARMY AVIATION CENTER
Fort Rucker, Alabama**

DATA REQUIRED BY THE PRIVACY ACT OF 1974
(5 U.S.C. 552a)

TITLE OF FORM QUESTIONNAIRE FOR AVIATION SCHOOL GRADUATES OR
THEIR COMMANDERS PRESCRIBING DIRECTIVE
AR 611-3

1. AUTHORITY

Section 301 Title 5 USC

2. PRINCIPAL PURPOSE(S)

To obtain information for evaluating Aviation Center Training Programs.

3. ROUTINE USES

1. To indicate the accuracy of the Aviation Center's instruction in teaching information skills required for the graduate's performance in the field.
2. Monitor the adequacy of instruction presented at the Aviation Center.

4. MANDATORY OR VOLUNTARY DISCLOSURE AND EFFECT ON INDIVIDUAL NOT PROVIDING INFORMATION

Voluntary, however, failure to disclose all or part of the requested information will significantly impair the ability to monitor and maintain effective and efficient instruction. Cooperation in completing this survey is essential.

INTRODUCTION: The United States Army Aviation Center (USAAVNC) periodically examines the performance of its graduates to insure the training programs are adequate to meet the needs of units in the field. As a recent graduate, you can provide information about your experiences and the relationship of the Fort Rucker training to unit needs.

This questionnaire consists of three sections. Section I asks questions about your background and experience. Section II asks about your training and performance with reference to specific tasks or skills. The final section asks for your ideas for improving USAAVNC training.

Carefully read the instructions for each section. Please respond to each item in the questionnaire.

ANSWER SHEET INSTRUCTIONS

Remove the answer packet from this booklet. The packet includes one answer sheet for Sections I and II and three pages for write-in answers to questions in Section III.

FIRST: FILL IN THE HEADING OF THE ANSWER SHEET AS FOLLOWS:

- Print your name and rank in space provided.
- On the line labeled "Course, Phase, & Class" write in your present unit and location.
- On the line labeled "Date" write in your duty MOS.
- Leave the block labeled "Identification Number" blank.

Now, turn the page and answer questions in Section I and II. Enter answers on answer sheet. Use a No. 2 pencil. Mark only one response for each item.

SECTION I

GENERAL DATA

1. How long after graduation from the 93H course did you arrive at your first operational unit?

- (5) 4 weeks or less
- (4) 5 to 6 weeks
- (3) 7 to 8 weeks
- (2) 9 to 10 weeks
- (1) 11 weeks or longer (If you marked this response please indicate in Section III, page 3-2, question 2, the reason for the delay in reaching your unit.)

2. What type of organization are you assigned to?

- (5) Tactical
- (4) Fixed Base with Tactical Responsibilities
- (3) Fixed Base (US Army Airfield)
- (2) Fixed Base (Joint Civil/Military Airfield)
- (1) Other (Indicate type organization in Section III)

3. What is your principal duty position?

- (5) 93H Facility
- (4) 93J Facility
- (3) 93H Staff (S-3, G-3, etc)
- (2) 93J Staff (S-3, G-3, etc)
- (1) Not Working in 93H MOS (If you select this response, mark the correct block on the answer sheet, then skip to Section III, page 3-2, question 2 and provide a brief description of your duty position.)

4. After arrival at your present unit, how much time elapsed before you started your facility training?

- (5) Less than one week
- (4) 1 to 3 weeks
- (3) 4 to 6 weeks
- (2) More than 6 weeks (If you marked this response please indicate in Section III, page 3-2, question 2, the reason for the delay in beginning facility training.)

SECTION II

GENERAL: In this section you are to provide information related to the specific tasks in which you were trained at Fort Rucker. Your experience in performing the task at your present unit is to be used as the basis for your answers.

ANSWER SHEET INSTRUCTIONS:

ADEQUACY OF TRAINING

For each task, respond to the following question by selecting one of the five responses provided below:

"How adequate was the training you received at Fort Rucker in preparing you to perform this task in your present unit?"

<u>Response</u>	<u>Description</u>
5	Trained, but so far have not performed this task in my unit.
4	Overtrained (received more training than required to meet my unit's needs).
3	Adequately Trained (received just about the right amount of training to meet my unit's needs).
2	Undertrained (did not receive enough training to meet my unit's needs).
1	Received no training in this task at Fort Rucker.

Remember to **MARK ONLY ONE RESPONSE**. Now, turn the page. The first question of Section II is number 5.

TASKS

5	Have Not Performed
4	Overtrained
3	Adequately Trained
2	Undertrained
1	Received No Training

5. Identify aircraft visually.
6. Identify aircraft approach and departure categories, IFR aircraft.
7. Identify aircraft approach and departure categories, VFR aircraft.
8. Control aircraft by ATC light signals.
9. Control vehicles and personnel by ATC light signals.
10. Select runway for use.
11. Provide taxi information.
12. Prevent aircraft entering ILS critical areas.
13. Control VFR departures.
14. Control VFR arriving aircraft.
15. Issue visual holding instructions.
16. Operate airport lighting aids.
17. Operate approach lighting systems.
18. Operate general airport lighting aids.
19. Operate visual guidance airport lighting systems.
20. Provide same runway departure separation, VFR.
21. Provide intersecting runways departure separation, VFR.
22. Provide helicopter departure separation, VFR.
23. Provide same runway arrival separation, VFR.
24. Provide intersecting runways arrival separation, VFR.
25. Provide helicopter arrival separation, VFR.
26. Identify operator controls and indicators, AN/TSQ-70A.

TASKS

5	Have Not Performed
4	Overtrained
3	Adequately Trained
2	Undertrained
1	Received No Training

27. Perform starting procedure, AN/TSQ-70A.
28. Perform operating procedure, AN/TSQ-70A.
29. Decode military aircraft designations, service, and mission symbols.
30. Determine significant changes in weather.
31. Solicit/record PIREP information.
32. Disseminate PIREP information.
33. Report weather conditions.
34. Use interphone procedures.
35. Transmit ATC radio messages.
36. Use ATC radio message format.
37. Use standard ATC radio terminology.
38. Log authorized non-ATC messages.
39. Report items requiring NOTAMS.
40. Decode/relay NOTAMS.
41. Issue airport condition advisories.
42. Issue wake turbulence advisory.
43. Issue bird activity advisory.
44. Issue parachute jumping advisory.
45. Issue safety advisory.
46. Request ATC control clearance.
47. Deliver IFR clearance.
48. Deliver abbreviated ATC clearances.
49. Deliver special VFR clearances.

TASKS

5	Have Not Performed
4	Overtrained
3	Adequately Trained
2	Undertrained
1	Received No Training

50. Deliver amendments to ATC clearances.
51. Process flight progress strips.
52. Maintain flight progress strips.
53. Provide vertical separation, IFR non-radar.
54. Provide longitudinal separation, IFR non-radar.
55. Provide lateral separation, IFR non-radar.
56. Issue holding instructions, IFR non-radar.
57. Authorize special VFR.
58. Apply visual separation, VFR.
59. Perform intra facility coordination.
60. Perform inter facility coordination.
61. Issue arrival information.
62. Issue approach clearance.
63. Formulate/receive IFR clearances, non-radar.
64. Issue IFR departure clearances, non-radar.
65. Issue abbreviated departure clearance, non-radar.
66. Issue separation between IFR departures, non-radar.
67. Issue separation between IFR departures/arrivals, non-radar.
68. Determine emergency action.
69. Handle emergency.
70. Perform equipment checks.
71. Provide IFR/VFR supplemental information.

TASKS

5	Have Not Performed
4	Overtrained
3	Adequately Trained
2	Undertrained
1	Received No Training

72. Provide low altitude enroute and instrument approach information as requested.
73. Interpret criteria for facility rating and certification.
74. Maintain DA Forms 3502-R and 3503-R.
75. Provide traffic management information.
76. Put on and wear a protective mask.
77. Perform operator's maintenance on protective mask.
78. Decontaminate self.
79. Decontaminate individual equipment.
80. Satisfy personal needs in a chemical environment.
81. Put on and wear protective clothing.
82. Identify terrain features (natural and manmade) on a map.
83. Determine the grid coordinates of a point on a military map using the military grid reference system.
84. Determine the elevation of a point on the ground using a map.
85. Determine a location on the ground by terrain association.
86. Measure distance on a map.
87. Determine azimuth using a coordinate scale and protractor.
88. Orient a map to the ground by map-terrain association.
89. Apply mask-to-mouth resuscitation to a chemical agent casualty.
90. Give back pressure armlift artificial resuscitation to a chemical agent casualty.
91. Give first aid to electric shock casualty.

AIR TRAFFIC CONTROL TOWER OPERATOR (93H)

93H GRADUATE QUESTIONNAIRE

SECTION III

WRITE-IN QUESTIONS

NAME _____

UNIT _____

LOCATION _____

CURRENT DATE _____

SECTION III ANSWER SHEET

You just finished rating your training on specific task/skill areas. Using those tasks or skills as a basis, answer the following:

1. Given your experience in your current duty assignment, what additional instruction would have enabled you to adapt more readily to your unit's mission? (If more space is needed, use the back of the sheet.)

	<u>Task/Skill</u>	<u>Comments</u>
a.	_____	_____
b.	_____	_____
c.	_____	_____
d.	_____	_____
e.	_____	_____

2. Are there any additional comments you would like to make? You may clarify or elaborate on any of your previous responses (please cross reference) or comment on aspects of USAAVNC and unit training that have not been covered.

WRITE ON THE BACK OF THIS SHEET IF NECESSARY.

3. While at Fort Rucker, were you or any member of your family exposed to an act of discrimination by virtue of your being a soldier, student, or other reasons? Please provide some details. If none, so state.

COMPLETION INSTRUCTIONS: Now that you have completed this questionnaire, please be sure that all necessary data is entered on all answer sheets. Then place the answer sheets and questionnaire in the envelope provided and mail it. Your cooperation is most appreciated.

WRITE ON THE BACK OF THIS SHEET IF NECESSARY.

APPENDIX B
COMMANDER'S QUESTIONNAIRE

DAPC-MSP-S-79-38

AIR TRAFFIC CONTROL TOWER OPERATOR (93H)
COMMANDER'S QUESTIONNAIRE

DIRECTORATE OF EVALUATION AND STANDARDIZATION
UNITED STATES ARMY AVIATION CENTER
FORT RUCKER, ALABAMA

DATA REQUIRED BY THE PRIVACY ACT OF 1974
(5 U.S.C. 552a)

TITLE OF FORM QUESTIONNAIRE FOR AVIATION SCHOOL GRADUATES OR
THEIR COMMANDERS PRESCRIBING DIRECTIVE
AR 611-3

1. AUTHORITY

Section 301 Title 5 USC

2. PRINCIPAL PURPOSE(S)

To obtain information for evaluating Aviation Center Training Programs.

3. ROUTINE USES

1. To indicate the accuracy of the Aviation Center's instruction in teaching information skills required for the graduate's performance in the field.
2. Monitor the adequacy of instruction presented at the Aviation Center.

4. MANDATORY OR VOLUNTARY DISCLOSURE AND EFFECT ON INDIVIDUAL NOT PROVIDING INFORMATION

Voluntary, however, failure to disclose all or part of the requested information will significantly impair the ability to monitor and maintain effective and efficient instruction. Cooperation in completing this survey is essential.

INTRODUCTION: The United States Army Aviation Center periodically examines the performance of its graduates to insure the training programs are adequate to meet the needs of operational units. As the Commander, you are requested to provide information that will contribute to this feedback program and thereby enhance the assessment of the effectiveness of Air Traffic Control Tower Operator (93H) training.

This questionnaire consists of two sections. Section I asks questions about the performance of tasks by recent graduates. Section II asks for your views and recommendations concerning the improvement of training at the Aviation Center.

Carefully read the instructions for each section. Please respond to each item in the questionnaire.

ANSWER SHEET INSTRUCTIONS.

You should have one answer sheet for Section I and a four page Section II for write-in answers. Responses for Section I will be recorded on the answer sheet.

FIRST: FILL IN THE HEADING OF THE ANSWER SHEET AS FOLLOWS:

- Print your name and rank in space provided.
- On the line labeled "Course, Phase, & Class" write in your present unit and location.
- Leave the block labeled "Identification Number" blank.

SECTION I

GENERAL DIRECTIONS

In this section you are to provide information relating to the recent 93H graduates' initial performance level of selected tasks. You may wish to consult your operations officer or other knowledgeable individuals before formulating your responses. Initial performance level is intended to mean the individuals' performance proficiency upon arrival from the Aviation Center.

Use the following scale to rate the 93H's ability to perform the task indicated. Select only one response per task.

<u>RESPONSE #</u>	<u>DESCRIPTION</u>
5	Well Prepared
4	Adequately Prepared
3	Not Well Prepared
2	Have Not Observed
1	Is Not a Unit Mission

SECTION I

TASKS

5	Well Prepared
4	Adequately Prepared
3	Not Well Prepared
2	Have Not Observed
1	Is Not a Unit Mission

1. Identify aircraft visually.
2. Identify aircraft approach and departure categories, IFR aircraft.
3. Identify aircraft approach and departure categories, VFR aircraft.
4. Control aircraft by ATC light signals.
5. Control vehicles and personnel by ATC light signals.
6. Select runway for use.
7. Provide taxi information.
8. Prevent aircraft entering ILS critical areas.
9. Control VFR departures.
10. Control VFR arriving aircraft.
11. Issue visual holding instructions.
12. Operate airport lighting aids.
13. Operate approach lighting systems.
14. Operate general airport lighting aids.
15. Operate visual guidance airport lighting systems.
16. Provide same runway departure separation, VFR.
17. Provide intersecting runways departure separation, VFR.
18. Provide helicopter departure separation, VFR.
19. Provide same runway arrival separation, VFR.
20. Provide intersecting runways arrival separation, VFR.
21. Provide helicopter arrival separation, VFR.
22. Identify operator controls and indicators, AN/TSQ-70A.

TASKS

5	Well Prepared
4	Adequately Prepared
3	Not Very Well Prepared
2	Have Not Observed
1	Is Not a Unit Mission

23. Perform starting procedure, AN/TSQ-70A.
24. Perform operating procedure, AN/TSQ-70A.
25. Decode military aircraft designations, service, and mission symbols.
26. Determine significant changes in weather.
27. Solicit/record PIREP information.
28. Disseminate PIREP information.
29. Report weather conditions.
30. Use interphone procedures.
31. Transmit ATC radio messages.
32. Use ATC radio message format.
33. Use standard ATC radio terminology.
34. Log authorized non-ATC messages.
35. Report items requiring NOTAMS.
36. Decode/relay NOTAMS.
37. Issue airport condition advisories.
38. Issue wake turbulence advisory.
39. Issue bird activity advisory.
40. Issue parachute jumping advisory.
41. Issue safety advisory.
42. Request ATC control clearance.
43. Deliver IFR clearance.
44. Deliver abbreviated ATC clearances.
45. Deliver special VFR clearances.

TASKS

5	Well Prepared
4	Adequately Prepared
3	Not Very Well Prepared
2	Have Not Observed
1	Is Not a Unit Mission

46. Deliver amendments to ATC clearances.
47. Process flight progress strips.
48. Maintain flight progress strips.
49. Provide vertical separation, IFR non-radar.
50. Provide longitudinal separation, IFR non-radar.
51. Provide lateral separation, IFR non-radar.
52. Issue holding instructions, IFR non-radar.
53. Authorize special VFR.
54. Apply visual separation, VFR.
55. Perform intra facility coordination.
56. Perform inter facility coordination.
57. Issue arrival information.
58. Issue approach clearance.
59. Formulate/receive IFR clearances, non-radar.
60. Issue IFR departure clearances, non-radar.
61. Issue abbreviated departure clearance, non-radar.
62. Issue separation between IFR departures, non-radar.
63. Issue separation between IFR departures/arrivals, non-radar.
64. Determine emergency action.
65. Handle emergency.
66. Perform equipment checks.
67. Provide IFR/VFR supplemental information.

TASKS

5	Well Prepared
4	Adequately Prepared
3	Not Very Well Prepared
2	Have Not Observed
1	Is Not a Unit Mission

68. Provide low altitude enroute and instrument approach information as requested.

69. Interpret criteria for facility rating and certification.

70. Maintain DA Forms 3502-R and 3503-R.

71. Provide traffic management information.

72. What type of organization are you assigned to:

- (5) Tactical
- (4) Fixed based with tactical responsibilities
- (3) Fixed base (US Army Airfield)
- (2) Fixed based (Joint civil/military Airfield)
- (1) Other (indicate type organization in Section II)

END OF SECTION I, CONTINUE WITH SECTION II

SECTION II

AIR TRAFFIC CONTROL TOWER OPERATOR (93H)

COMMANDER'S QUESTIONNAIRE

WRITE-IN QUESTIONS

NAME _____

UNIT _____

LOCATION _____

CURRENT DATE _____

SECTION II

This section provides an opportunity for you to express your opinions or give responses in written form. If you need more space for a given response, write on the back of the sheet. Please provide a response to all questions in Section II. In the space provided on the cover sheet write your name, unit, location and the current date.

Turn the page and answer questions 1-3.

WRITE ON THIS PAGE IF NECESSARY.

SECTION II ANSWER SHEET

1. Given your experience with recent 93H graduate(s), please describe any additional instruction that should be given at the Aviation Center to enable future graduates to adapt more readily to your unit's mission.

<u>TASK</u>	<u>COMMENTS</u>
a. _____	_____
b. _____	_____
c. _____	_____
d. _____	_____
e. _____	_____

2. Which two tasks listed in Section I require the greatest amount of additional training at your unit?

a. _____
b. _____

WRITE ON THE BACK OF THIS PAGE IF NECESSARY

3. Are there any additional comments you would like to make? You may clarify or elaborate on any of your previous responses (please cross reference) or comment on aspects of the Aviation Center and unit training that have not been covered.

COMPLETION INSTRUCTIONS: When you have finished Section II, detach it from the questionnaire. Check your answer sheets for completeness and accuracy. Finally, place the answer sheets in the envelope provided and mail it. Your cooperation is most appreciated.

WRITE ON THE BACK OF THIS PAGE IF NECESSARY

APPENDIX C

GRADUATE QUESTIONNAIRE SUSPECT TASK CROSSTABULATIONS

There were eighteen respondents for Version A of the questionnaire. Two of these respondents stated they were not functioning in the 93H MOS. One completed the questionnaire while the other skipped section two. Twenty graduates responded to Version B of the questionnaire. Two of these individuals said they were not functioning in the 93H MOS. Neither completed section two of the questionnaire. Other variations in the total frequencies for each version are due to selective non-response by the graduates.

REPORT ITEMS REQUIRING NOTAMS

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A		2	8		6
VERSION B	1	7	6		5
TOTAL	1	9	14		11

DECODE/RELAY NOTAMS

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A		4	7		6
VERSION B	1	5	6		6
TOTAL	1	9	13		12

PREVENT AIRCRAFT ENTERING ILS CRITICAL AREAS

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A	4	2			11
VERSION B	7	2	2		8
TOTAL	11	4	2		19

OPERATE AIRPORT LIGHTING AIDS

	<u>NOT</u> <u>TRAINED</u>	<u>UNDER</u> <u>TRAINED</u>	<u>ADEQUATELY</u> <u>TRAINED</u>	<u>OVER</u> <u>TRAINED</u>	<u>NOT</u> <u>PERFORMED</u>
VERSION A	3	5	8		1
VERSION B	5	2	6	1	1
TOTAL	8	7	14	1	1

OPERATE GENERAL AIRPORT LIGHTING AIDS

	<u>NOT</u> <u>TRAINED</u>	<u>UNDER</u> <u>TRAINED</u>	<u>ADEQUATELY</u> <u>TRAINED</u>	<u>OVER</u> <u>TRAINED</u>	<u>NOT</u> <u>PERFORMED</u>
VERSION A	5	1	4		7
VERSION B	4		6		
TOTAL	9	1	10		7

OPERATE VISUAL GUIDANCE AIRPORT LIGHTING SYSTEMS

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A	5	1	4		7
VERSION B	4		6		
TOTAL	9		10		7

DECONTAMINATE SELF

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A	3	3	4		7
VERSION B	3		7		2
TOTAL	6	3	11		9

DECONTAMINATE INDIVIDUAL EQUIPMENT

	<u>NOT</u> <u>TRAINED</u>	<u>UNDER</u> <u>TRAINED</u>	<u>ADEQUATELY</u> <u>TRAINED</u>	<u>OVER</u> <u>TRAINED</u>	<u>NOT</u> <u>PERFORMED</u>
VERSION A	3	3	4		7
VERSION B	4		7		1
TOTAL	7	3	11		8

PUT ON AND WEAR PROTECTIVE CLOTHING

	<u>NOT</u> <u>TRAINED</u>	<u>UNDER</u> <u>TRAINED</u>	<u>ADEQUATELY</u> <u>TRAINED</u>	<u>OVER</u> <u>TRAINED</u>	<u>NOT</u> <u>PERFORMED</u>
VERSION A		4	6	1	6
VERSION B	2	1	7		
TOTAL	2	5	13	1	6

APPLY MASK TO MOUTH RESUSITATION TO A CHEMICAL AGENT CASUALTY

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A	5	2	4		5
VERSION B	3	2	4	1	2
TOTAL	8	4	8	1	7

GIVE BACK PRESSURE ARMLIFT ARTIFICIAL RESUSITATION TO A CHEMICAL AGENT CASUALTY

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A	6	1	3		5
VERSION B	3	3	2	1	
TOTAL	9	4	5	1	5

ISSUE SEPARATION BETWEEN IFR DEPARTURES, NON-RADAR

	<u>NOT</u> <u>TRAINED</u>	<u>UNDER</u> <u>TRAINED</u>	<u>ADEQUATELY</u> <u>TRAINED</u>	<u>OVER</u> <u>TRAINED</u>	<u>NOT</u> <u>PERFORMED</u>
VERSION A		2	6		9
VERSION B	1	4	6	1	6
TOTAL	1	6	12	1	15

ISSUE SEPARATION BETWEEN IFR ARRIVALS/DEPARTURES, NON-RADAR

	<u>NOT</u> <u>TRAINED</u>	<u>UNDER</u> <u>TRAINED</u>	<u>ADEQUATELY</u> <u>TRAINED</u>	<u>OVER</u> <u>TRAINED</u>	<u>NOT</u> <u>PERFORMED</u>
VERSION A		2	6		9
VERSION B	1	4	7	1	5
TOTAL	1	6	13	1	14

HANDLE EMERGENCY

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A		6	8		2
VERSION B	1	7	6		4
TOTAL	1	13	14		6

PERFORM OPERATING PROCEDURE - AN/TSQ-70A

	NOT <u>TRAINED</u>	UNDER <u>TRAINED</u>	ADEQUATELY <u>TRAINED</u>	OVER <u>TRAINED</u>	NOT <u>PERFORMED</u>
VERSION A	2	3	4		8
VERSION B	1		3		12
TOTAL	3	3	7		20

APPENDIX D

COMMANDER'S QUESTIONNAIRE SUSPECT TASK CROSSTABULATION

REPORT ITEMS REQUIRING NOTAMS

NOT UNIT <u>MISSION</u>	NOT <u>OBSERVED</u>	NOT WELL <u>PREPARED</u>	ADEQUATE _____	WELL <u>PREPARED</u>
	3	11	3	

DECODE - RELAY NOTAMS

NOT UNIT <u>MISSION</u>	NOT <u>OBSERVED</u>	NOT WELL <u>PREPARED</u>	ADEQUATE _____	WELL <u>PREPARED</u>
1	1	9	3	

PREVENT AIRCRAFT ENTERING ILS CRITICAL AREAS

NOT UNIT <u>MISSION</u>	NOT <u>OBSERVED</u>	NOT WELL <u>PREPARED</u>	ADEQUATE _____	WELL <u>PREPARED</u>
7	3	5	2	

OPERATE AIRPORT LIGHTING AIDS

NOT UNIT <u>MISSION</u>	NOT <u>OBSERVED</u>	NOT WELL <u>PREPARED</u>	ADEQUATE _____	WELL <u>PREPARED</u>
1	1	6	8	

OPERATE GENERAL AIRPORT LIGHTING AIDS

NOT UNIT <u>MISSION</u>	NOT <u>OBSERVED</u>	NOT WELL <u>PREPARED</u>	ADEQUATE _____	WELL <u>PREPARED</u>
1	2	5	7	2

OPERATE VISUAL GUIDANCE AIRPORT LIGHTING SYSTEMS

NOT UNIT <u>MISSION</u>	NOT <u>OBSERVED</u>	NOT WELL <u>PREPARED</u>	ADEQUATE _____	WELL <u>PREPARED</u>
3	4	6	3	

ISSUE SEPARATION BETWEEN IFR DEPARTURES, NON-RADAR

NOT UNIT <u>MISSION</u>	NOT <u>OBSERVED</u>	NOT WELL <u>PREPARED</u>	ADEQUATE _____	WELL <u>PREPARED</u>
5		8	2	

ISSUE SEPARATION BETWEEN IFR DEPARTURES/ARRIVALS, NON-RADAR

NOT UNIT <u>MISSION</u>	NOT <u>OBSERVED</u>	NOT WELL <u>PREPARED</u>	ADEQUATE _____	WELL <u>PREPARED</u>
5		7	2	

HANDLE EMERGENCY

NOT UNIT	NOT	NOT WELL	ADEQUATE	WELL
<u>MISSION</u>	<u>OBSERVED</u>	<u>PREPARED</u>	<u> </u>	<u>PREPARED</u>

9

4

PERFORM OPERATING PROCEDURE, AN/TSQ-70A

NOT UNIT	NOT	NOT WELL	ADEQUATE	WELL
<u>MISSION</u>	<u>OBSERVED</u>	<u>PREPARED</u>	<u> </u>	<u>PREPARED</u>

10

3

2

2

APPENDIX E
INTERVIEW GUIDE SHEETS

The interview guides were constructed to accommodate various response contingencies. The questions were written for the interviewers' guidance and were not intended to be read from the sheets verbatim. The interviewers were, instead, instructed to use their own conversational style during the interviews.

ANNEX I - Graduate Interview

ANNEX II - Supervisor Interview

ANNEX I

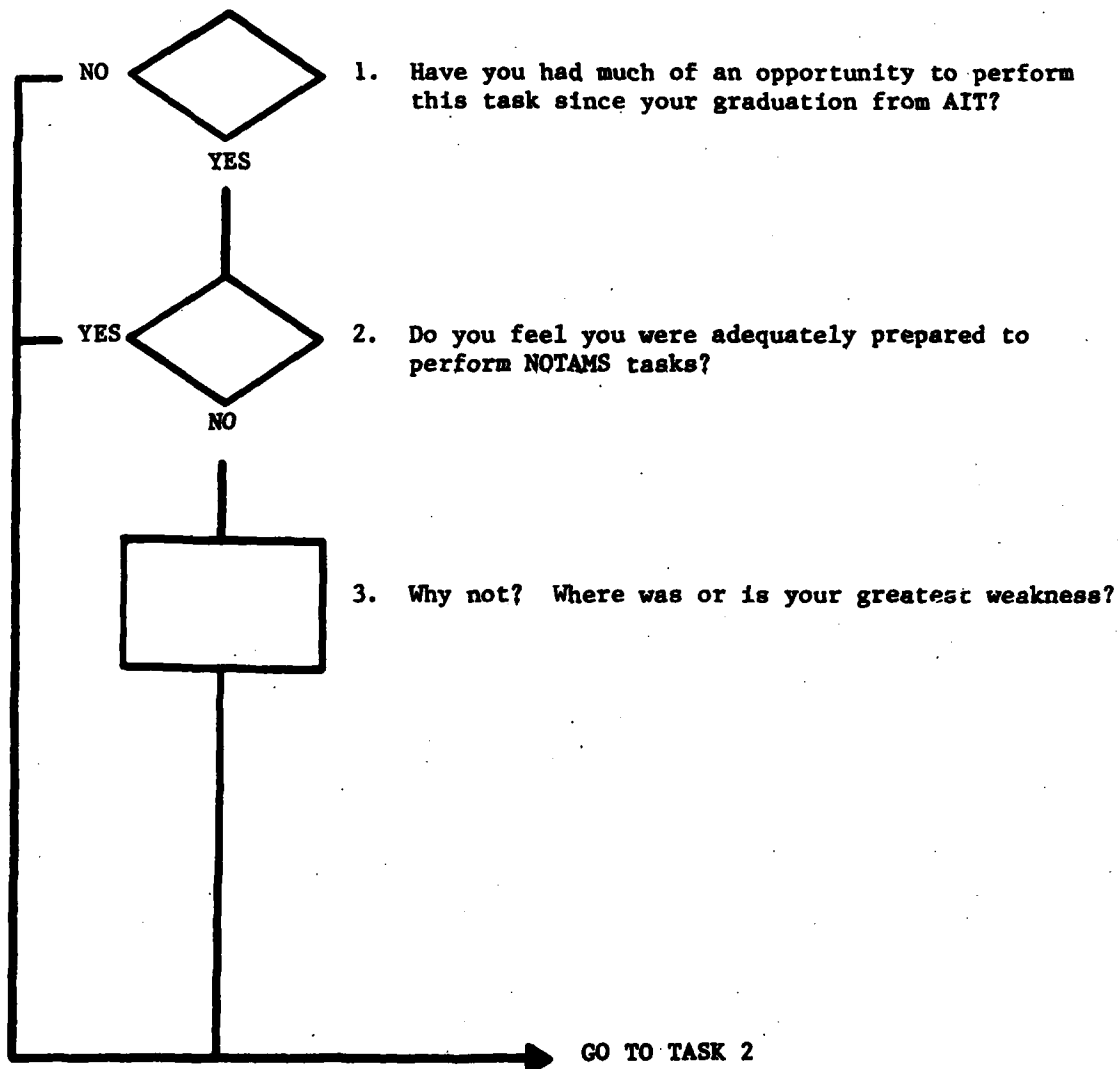
GRADUATE INTERVIEW

1. NOTAMS

Survey Indications: Undertraining in AIT.

Background: "Report items requiring NOTAMS" and "decode/relay NOTAMS" tasks are taught to Soldiers' Manual standards. Tasks are common to 93H and 93J.

Questions:

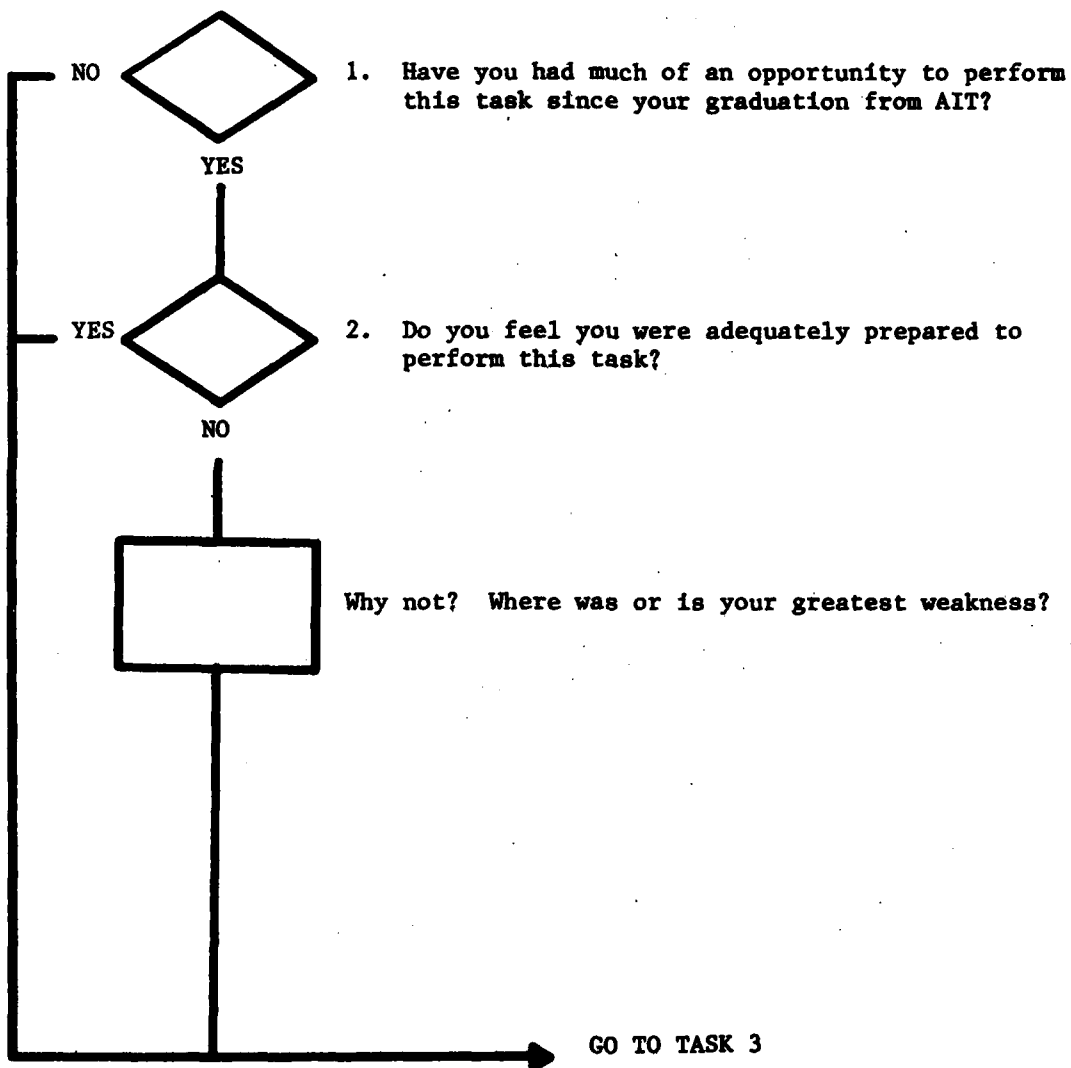


2. PREVENT AIRCRAFT ENTERING ILS CRITICAL AREAS

Survey Indications: Undertraining in AIT and Nonperformance in the field.

Background: Task is taught to Soldiers' Manual standards.

Questions:

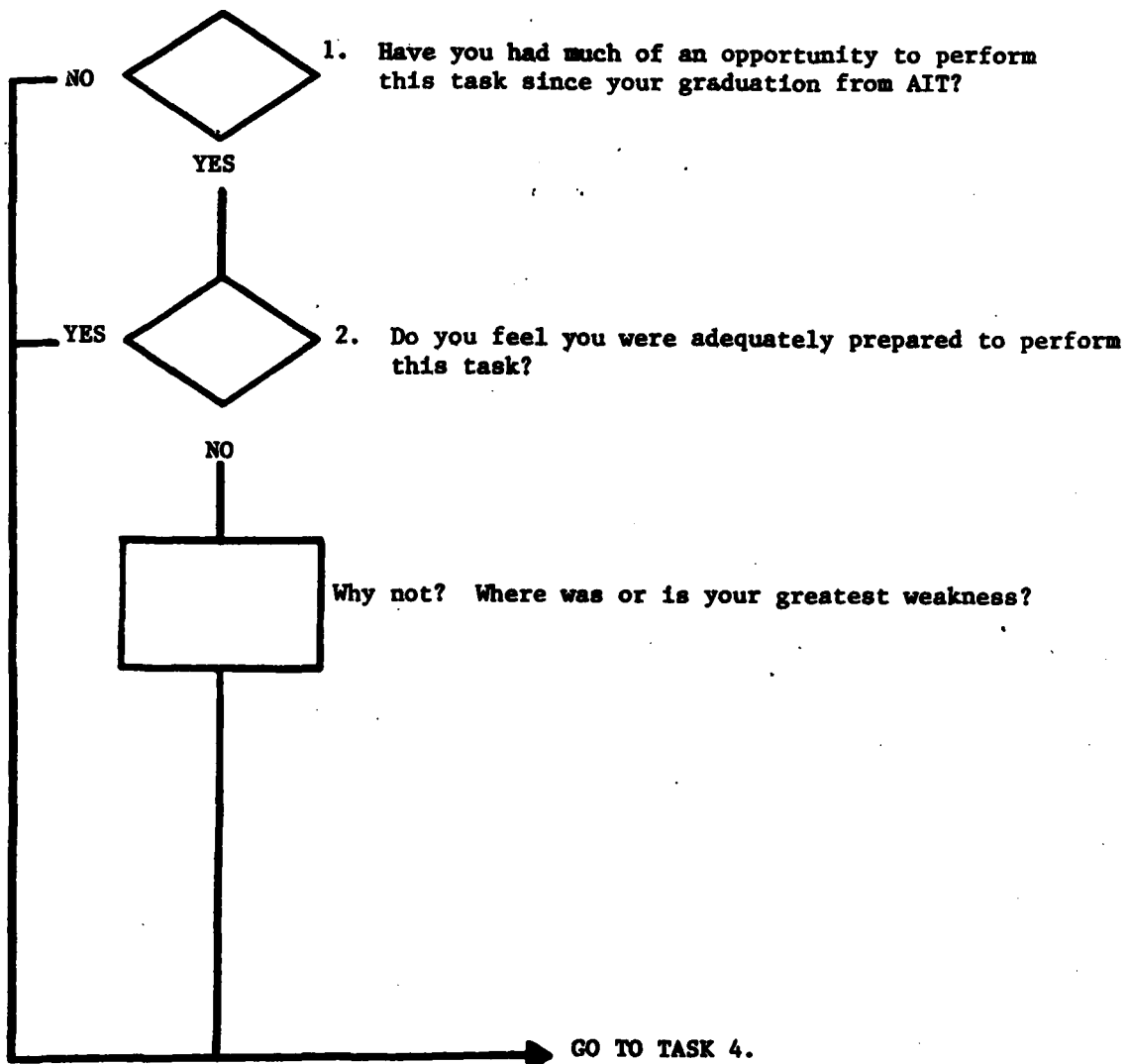


3. AIRPORT LIGHTING AIDS

Survey Indications: Undertraining in AIT.

Background: Tasks relating to operation of airport lighting aids and visual guidance systems are taught to Soldiers' Manual standards; however, there is no practical exercise. Only verbal instruction is given.

Questions:

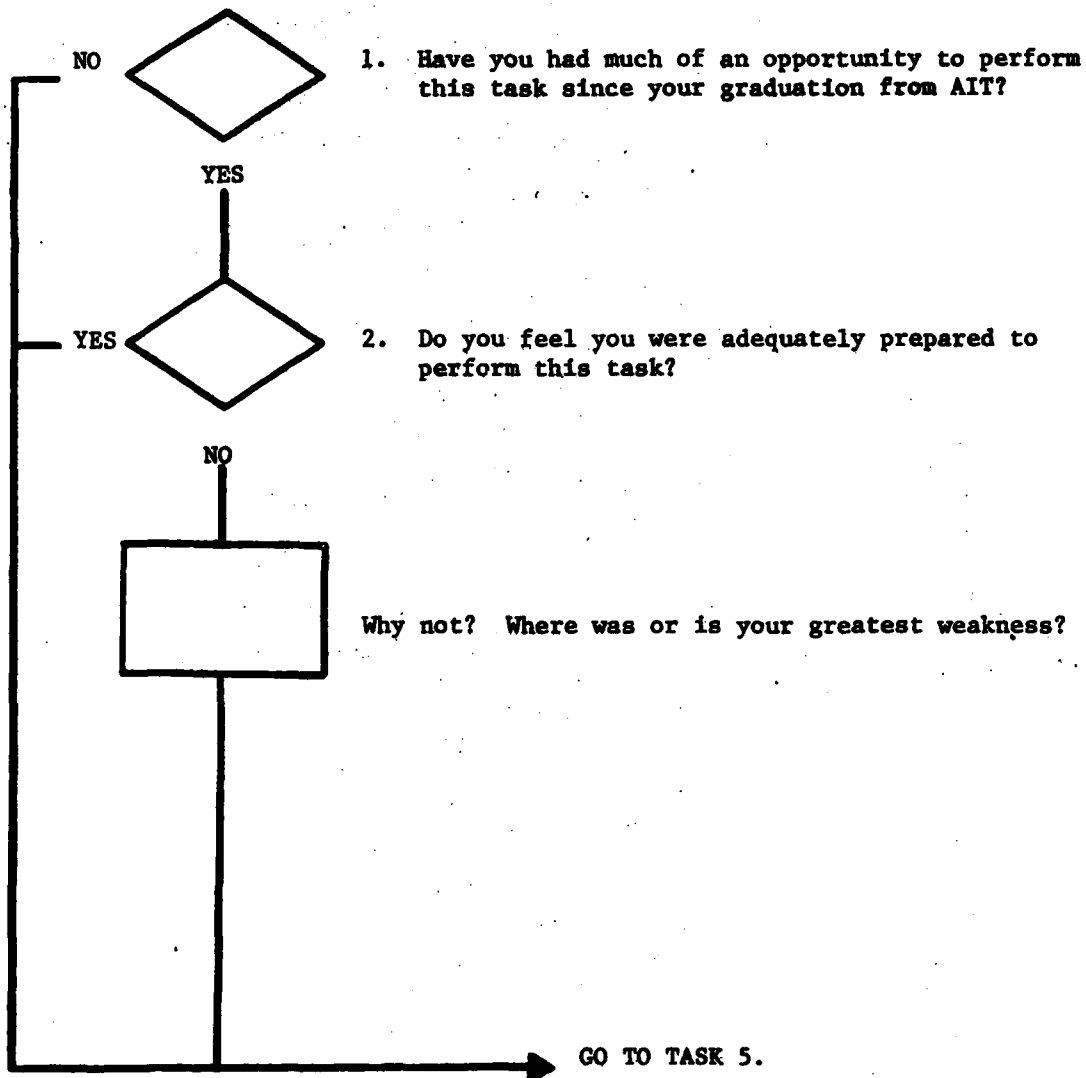


4. SEPARATION BETWEEN IFR DEPARTURES, NON-RADAR

Survey Indications: Undertraining in AIT.

Background: Taught to Soldiers' Manual standards.

Questions:

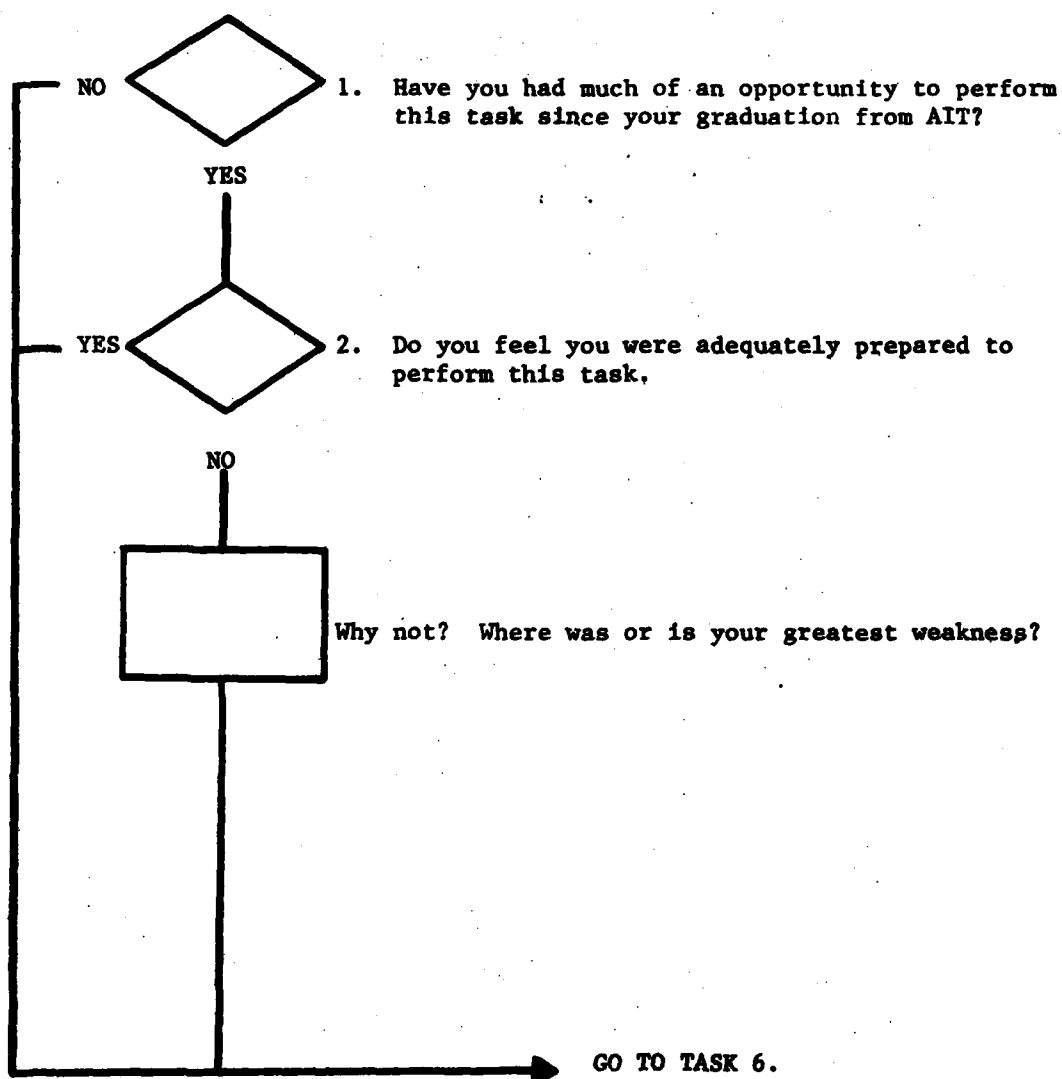


5. SEPARATION BETWEEN IFR ARRIVALS, NON-RADAR

Survey Indications: Undertraining in AIT.

Background: Taught to Soldiers' Manual standards.

Questions:

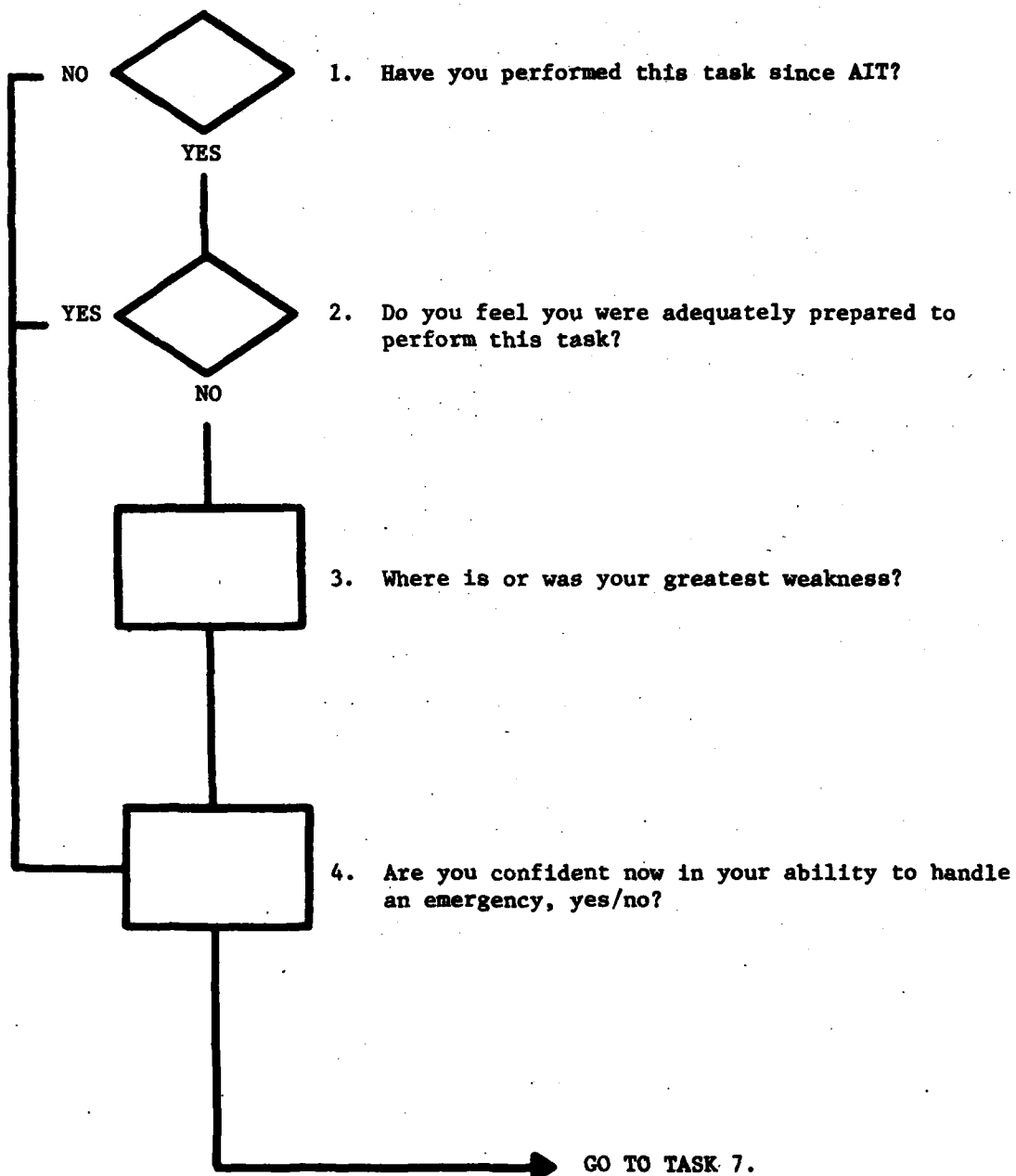


6. HANDLE EMERGENCY

Survey Indications: Undertraining in AIT.

Background: Taught to Soldiers' Manual standards.

Questions:

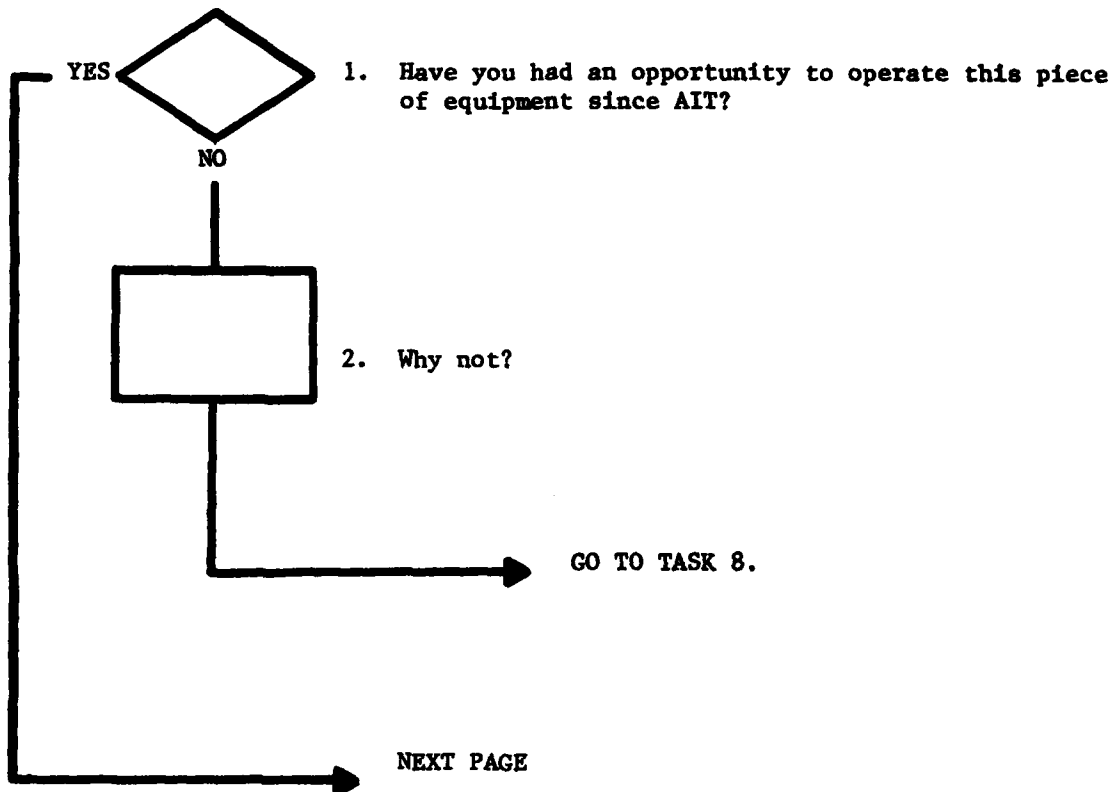


7. OPERATING PROCEDURE AN/TSQ-70A

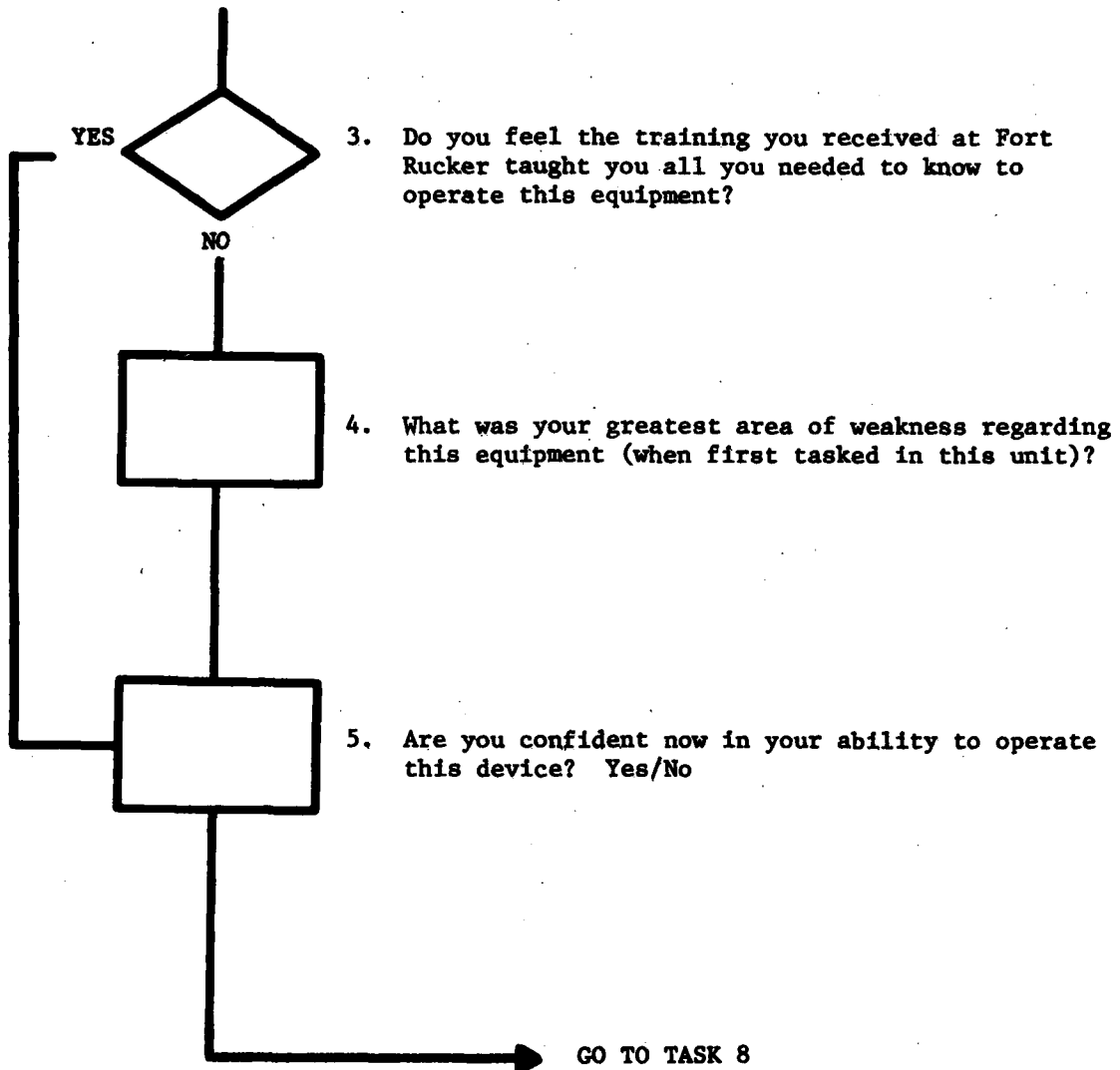
Survey Indications: Nonperformance in field and undertraining in AIT.

Background: Taught to Soldiers' Manual standards.

Questions:



7. OPERATING PROCEDURE AN/TSQ-70A (Continued)

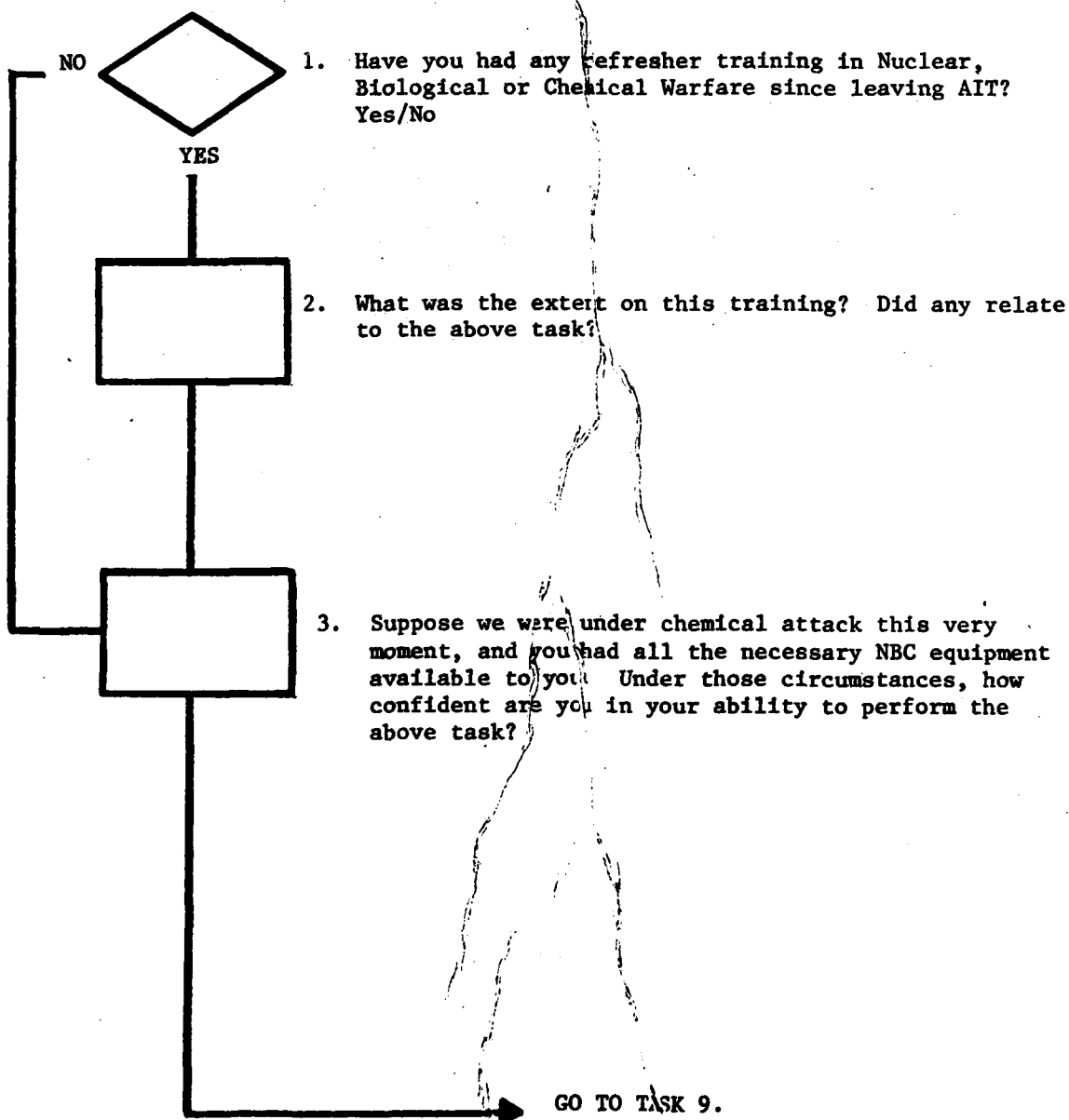


8. DECONTAMINATE SELF/INDIVIDUAL EQUIPMENT

Survey Indications: Undertraining in AIT.

Background: Not trained to SM standards because training kit not available. Original was health hazard. New kit on order and when received task will be taught to SM standards.

Questions:

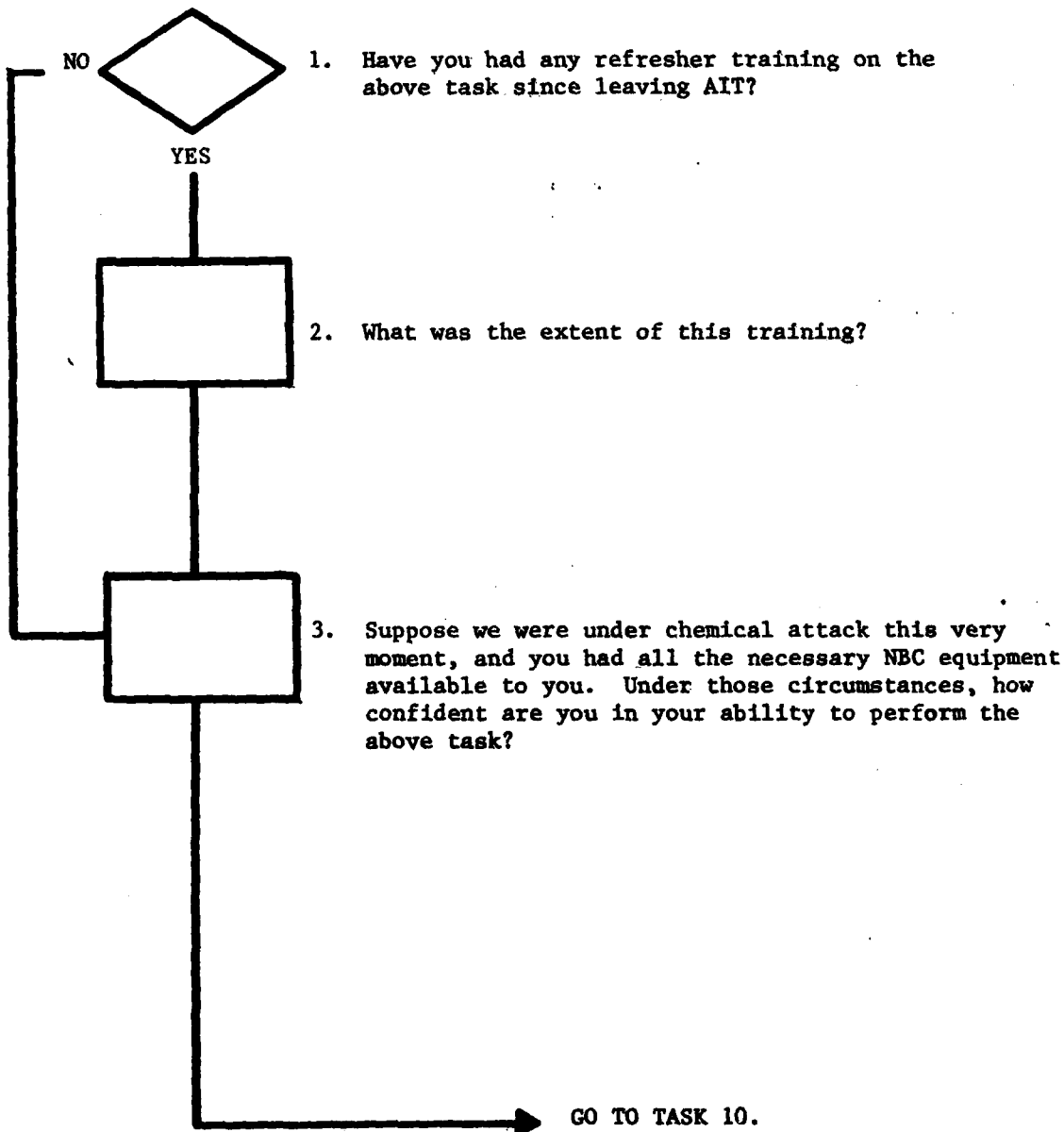


9. PUT ON AND WEAR PROTECTIVE CLOTHING

Survey Indications: Undertraining in AIT.

Background: Taught to SM standards. TEC tape in learning center and practical exercise in tactical phase.

Questions:



AD-A115 587

ARMY AVIATION CENTER FORT RUCKER AL DIRECTORATE OF E--ETC F/G 5/9
AIR TRAFFIC CONTROL TOWER OPERATOR COURSE (93H10) OPERATIONAL E--ETC(11)
MAY 81 W A ROWE, J B HOWARD
DES-81-4

UNCLASSIFIED

SBI-AD-F100 002

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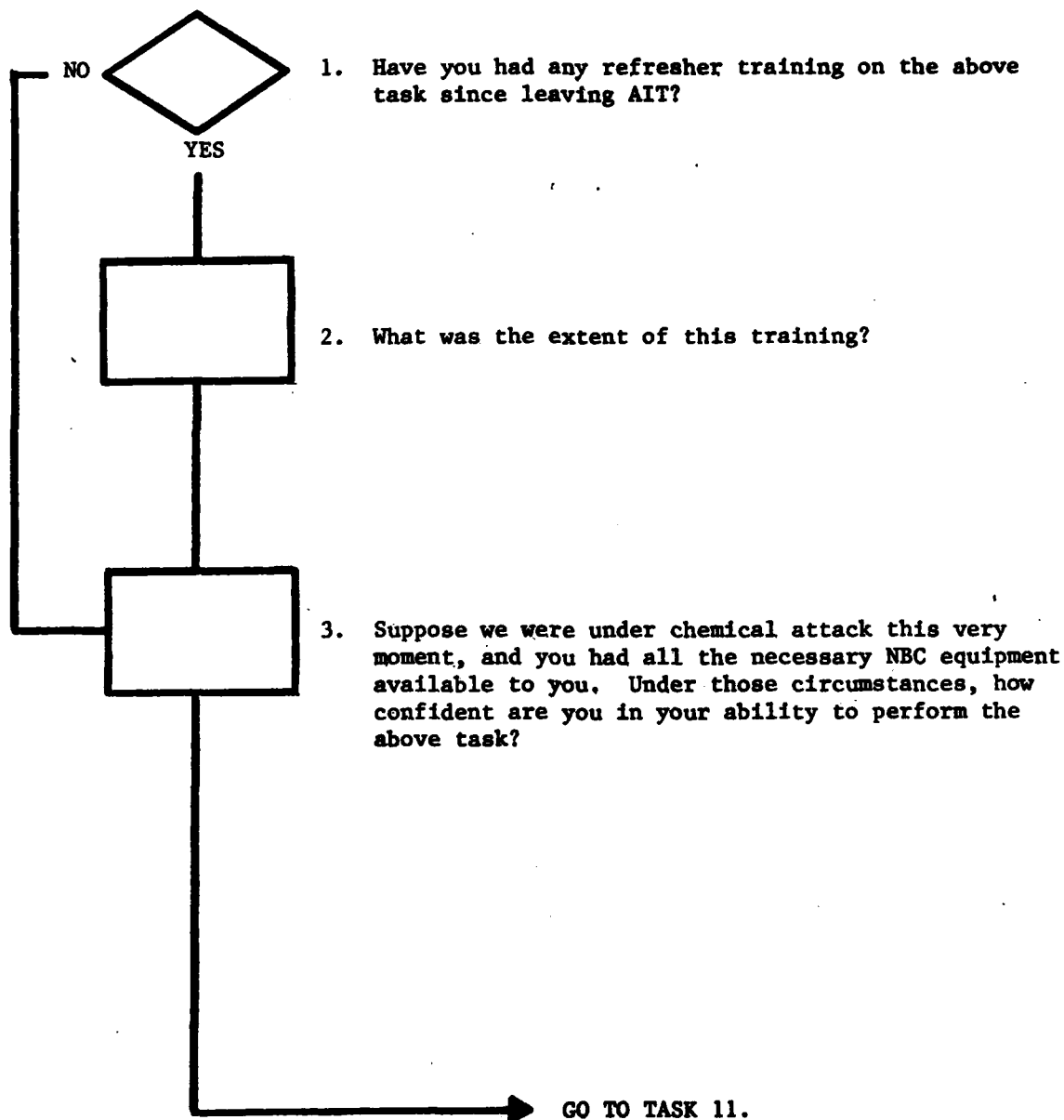


END
DATE
FILMED
7 82
DTIC

10. APPLY MASK-TO-MOUTH RESUSITATION TO CHEMICAL AGENT CASUALTY

Survey Indications: Undertraining in AIT.

Background: Not taught to SM standards. Task is presented via TEC tapes at Learning Center. No practical exercise because of sanitary considerations.

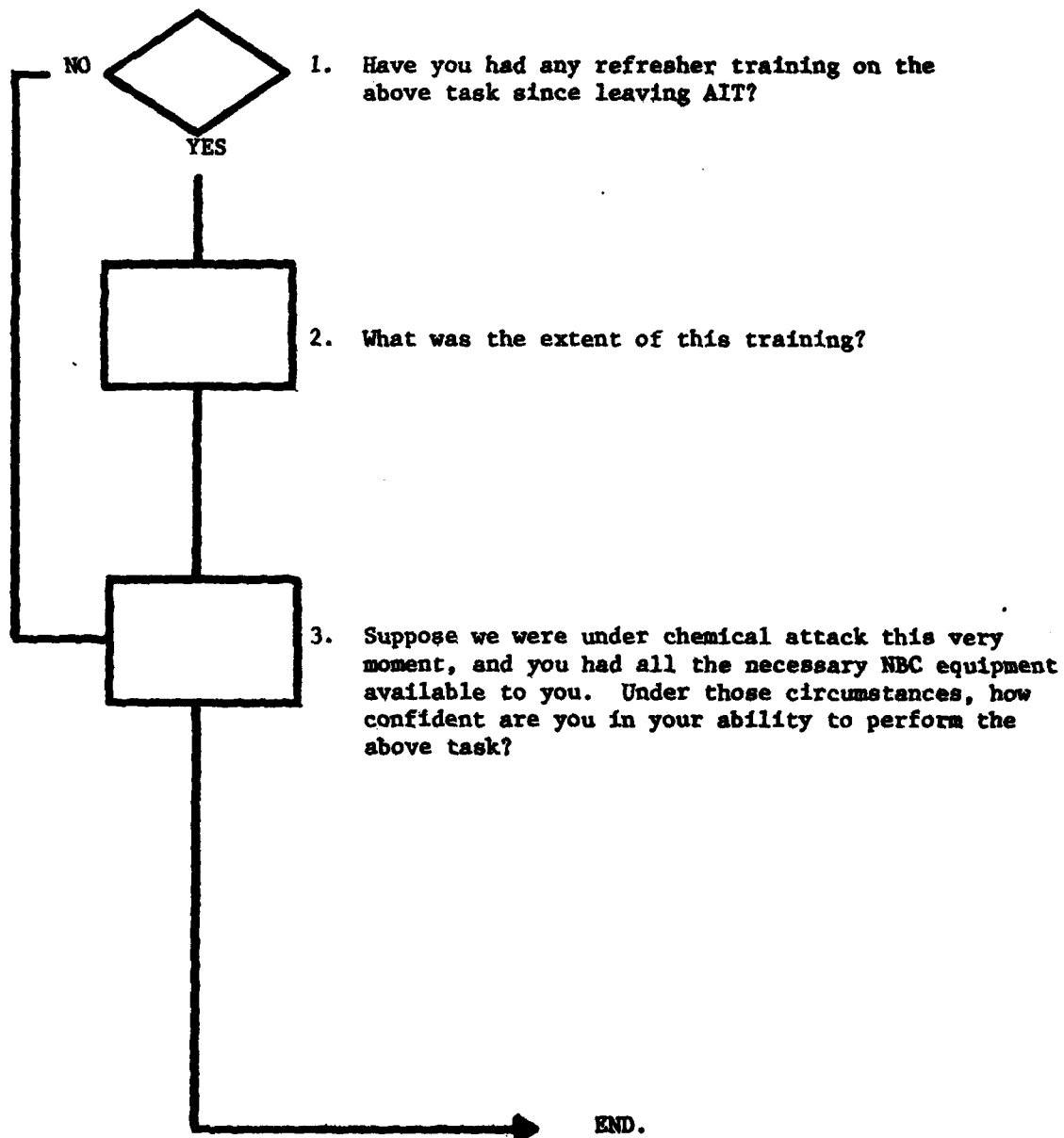


11. BACK PRESSURE ARLIFT ARTIFICAL RESUSITATION TO A CHEMICAL AGENT CASUALTY

Survey Indications: Undertraining in AIT.

Background: Taught to SM standards. TEC lesson at Learning Center and practical exercise in tactical phase.

Questions:



ANNEX II

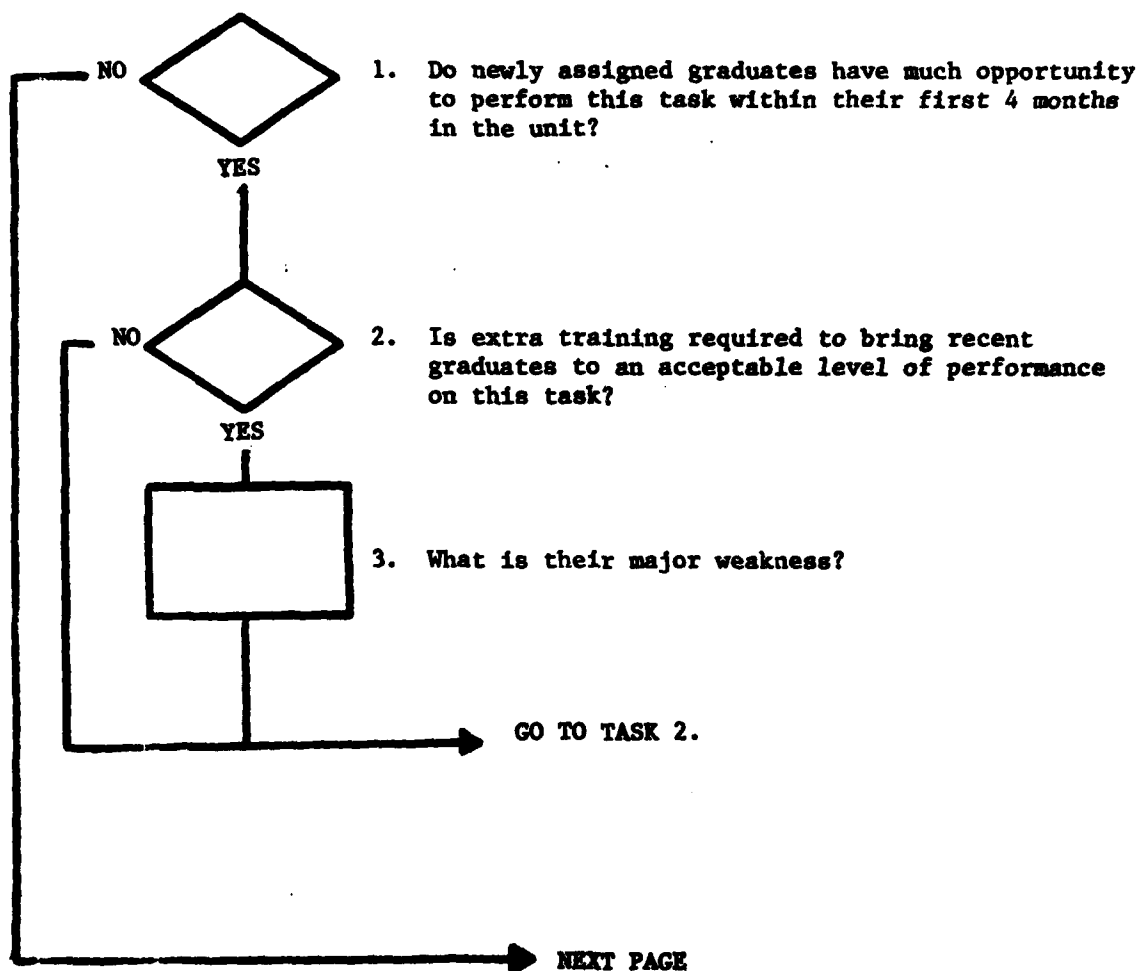
SUPERVISOR INTERVIEW

1. NOTAMS

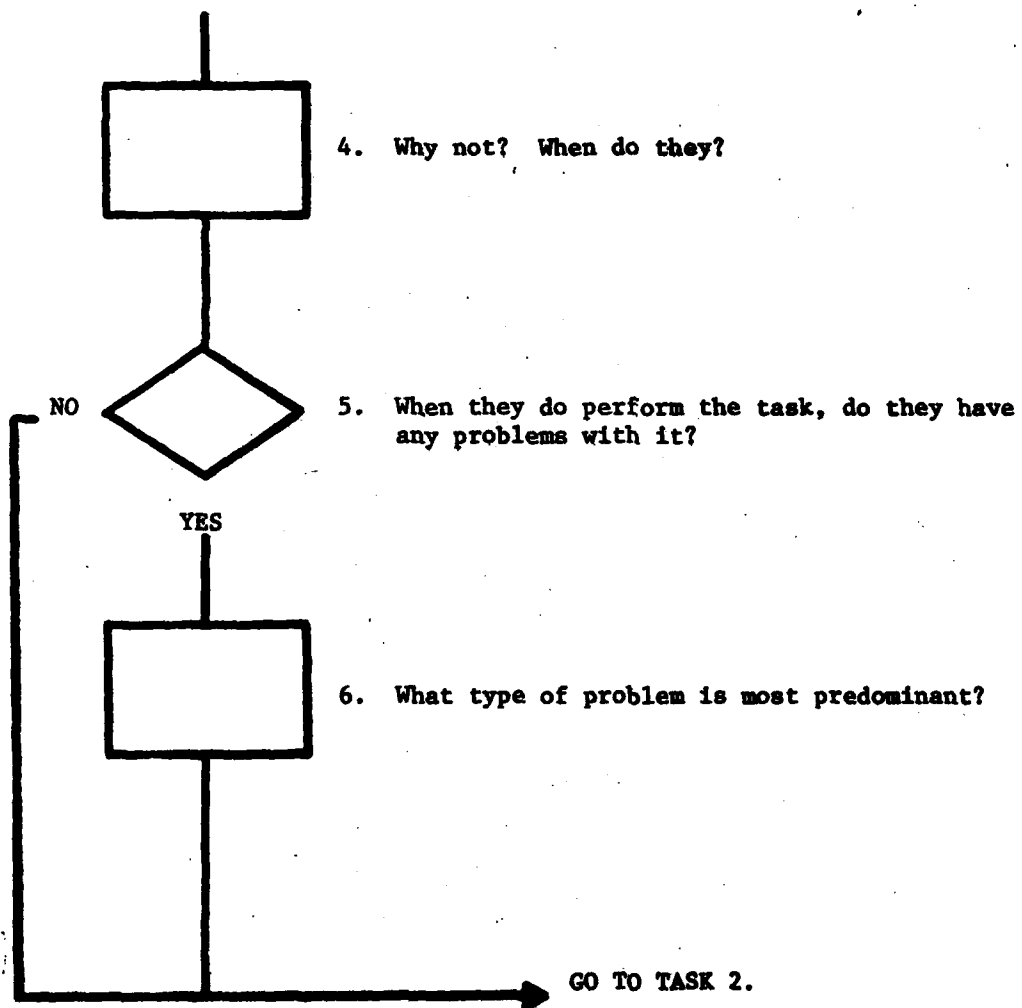
Survey Indications: Undertraining in AIT.

Background: "Report items requiring NOTAMS" and "decode/relay NOTAMS" tasks are taught to Soldiers' Manual standards. Tasks are common to 93H and 93J

Questions:



1. NOTAMS (Continued)

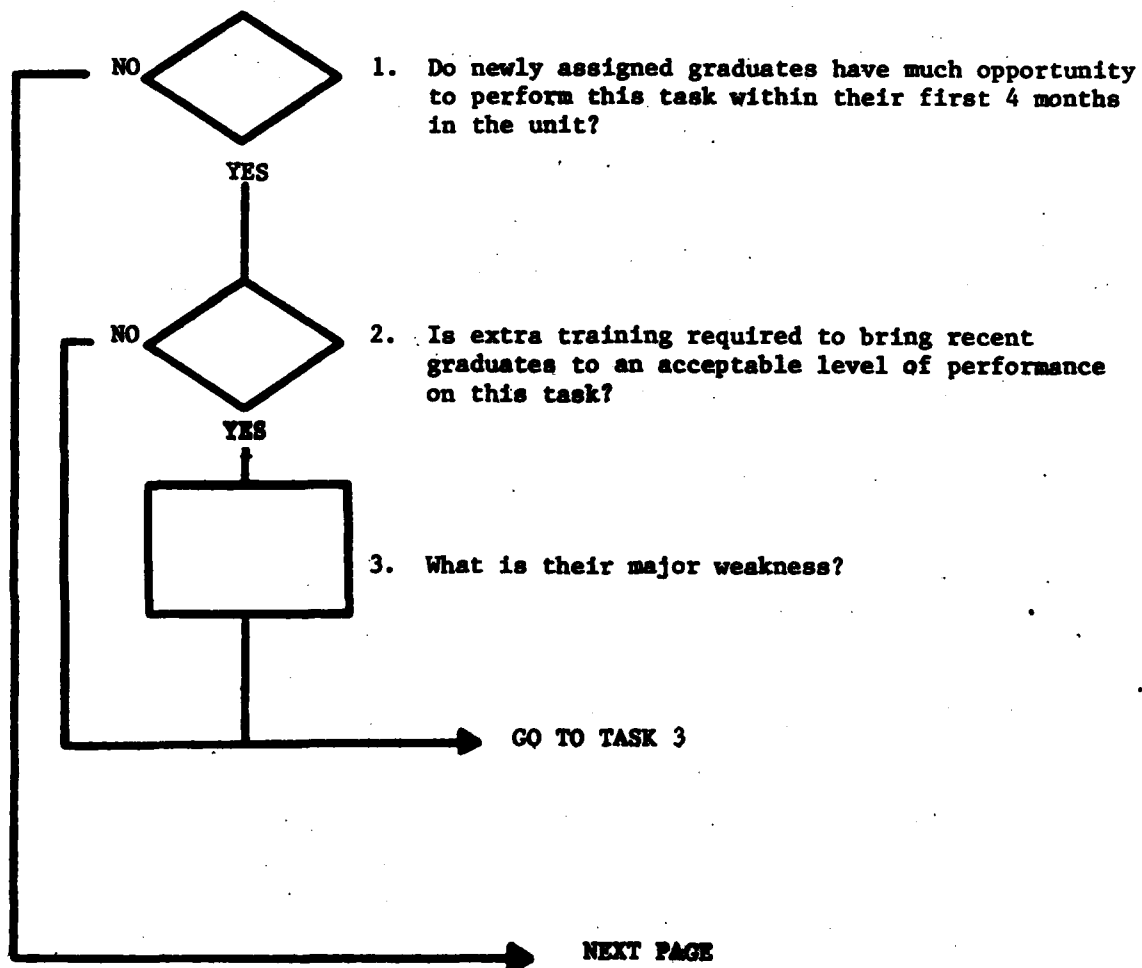


2. PREVENT AIRCRAFT ENTERING ILS CRITICAL AREAS

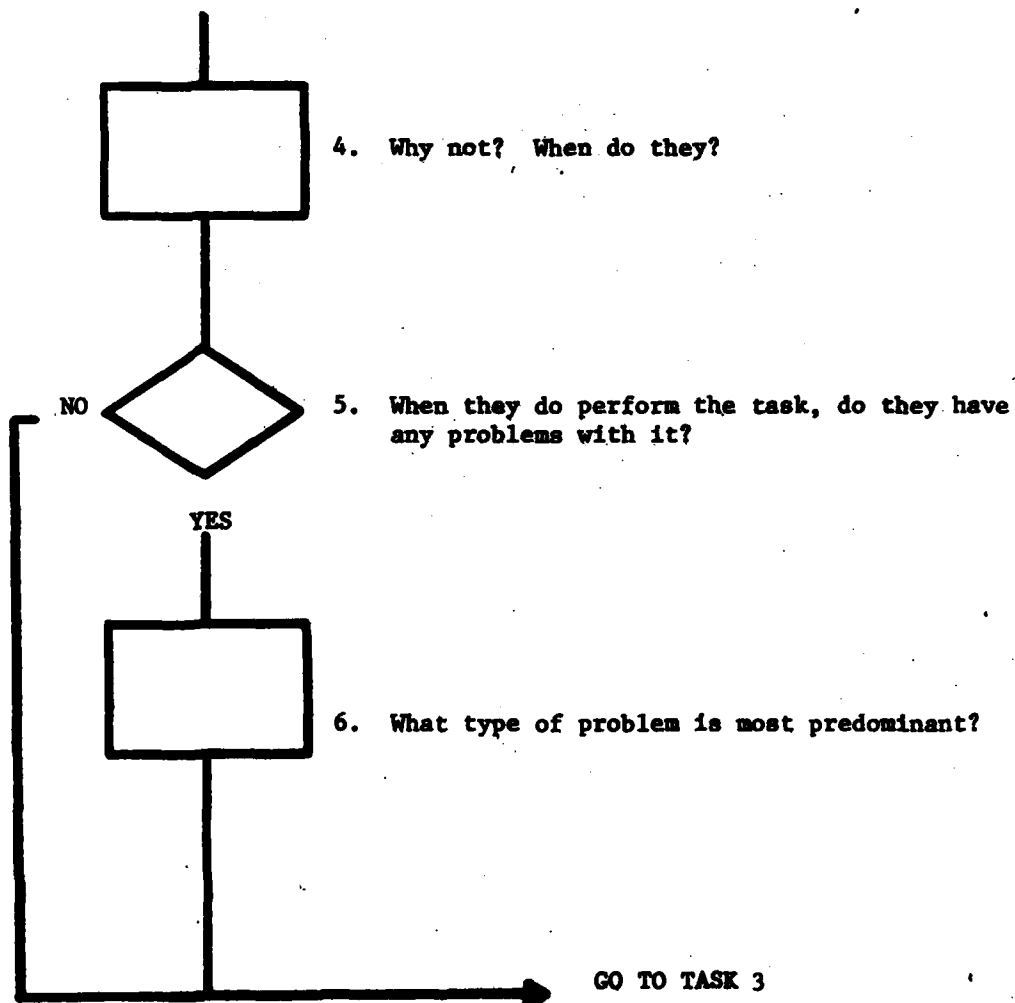
Survey Indications: Undertraining in AIT and nonperformance in field.

Background: Task is taught to Soldiers' Manual standards.

Questions:



2. PREVENT AIRCRAFT ENTERING ILS CRITICAL AREAS (Continued)

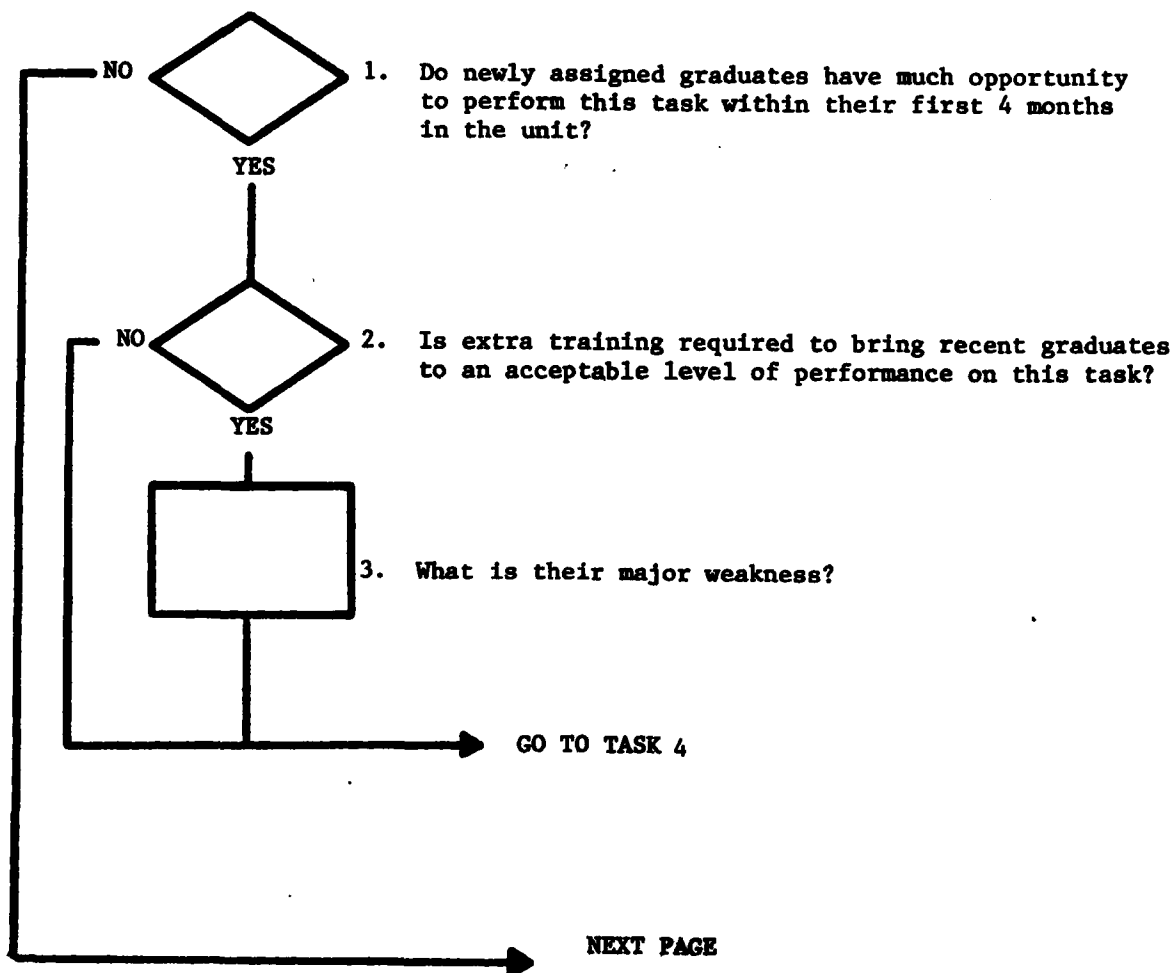


3. AIRPORT LIGHTING AIDS

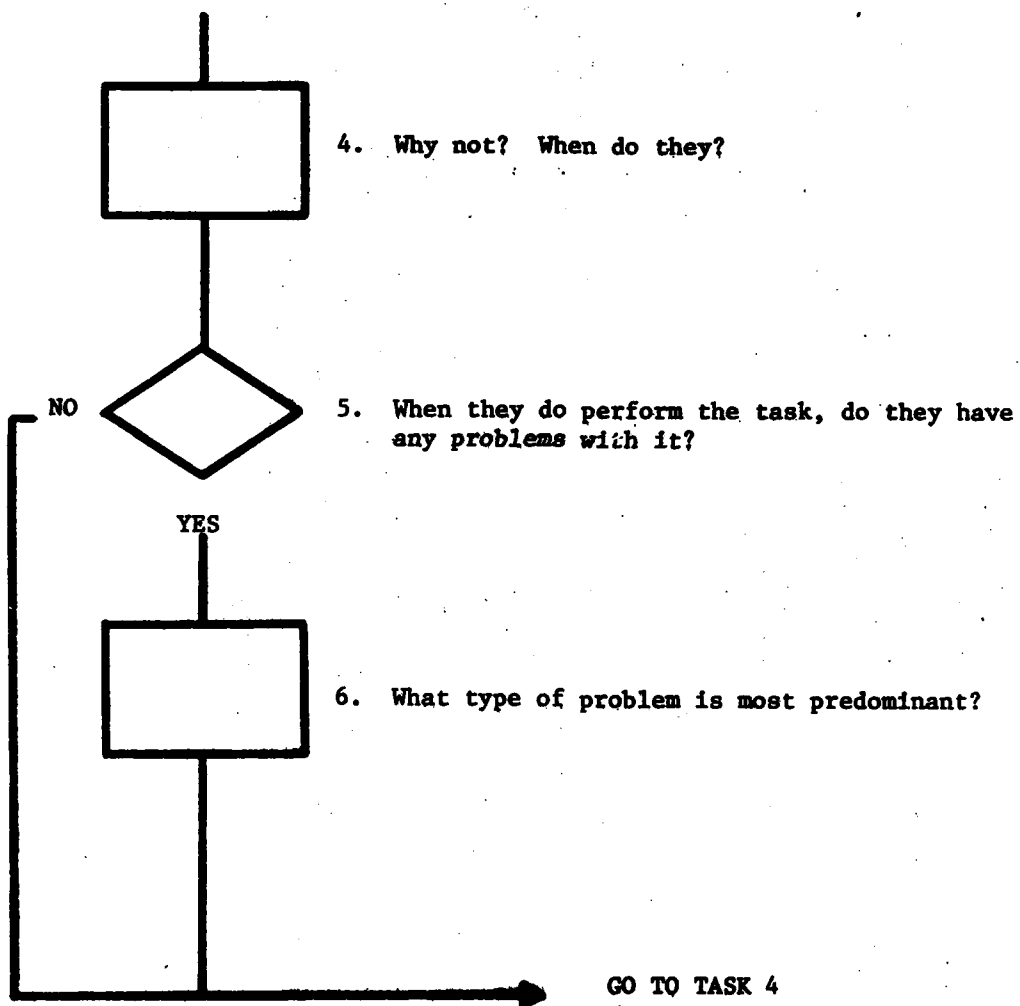
Survey Indications: Undertraining in AIT.

Background: Tasks relating to operation of airport lighting aids and visual guidance systems are taught to Soldiers' Manual standards; however, there is no practical exercise. Only verbal instruction is given.

Questions:



3. AIRPORT LIGHTING AIDS (Continued)

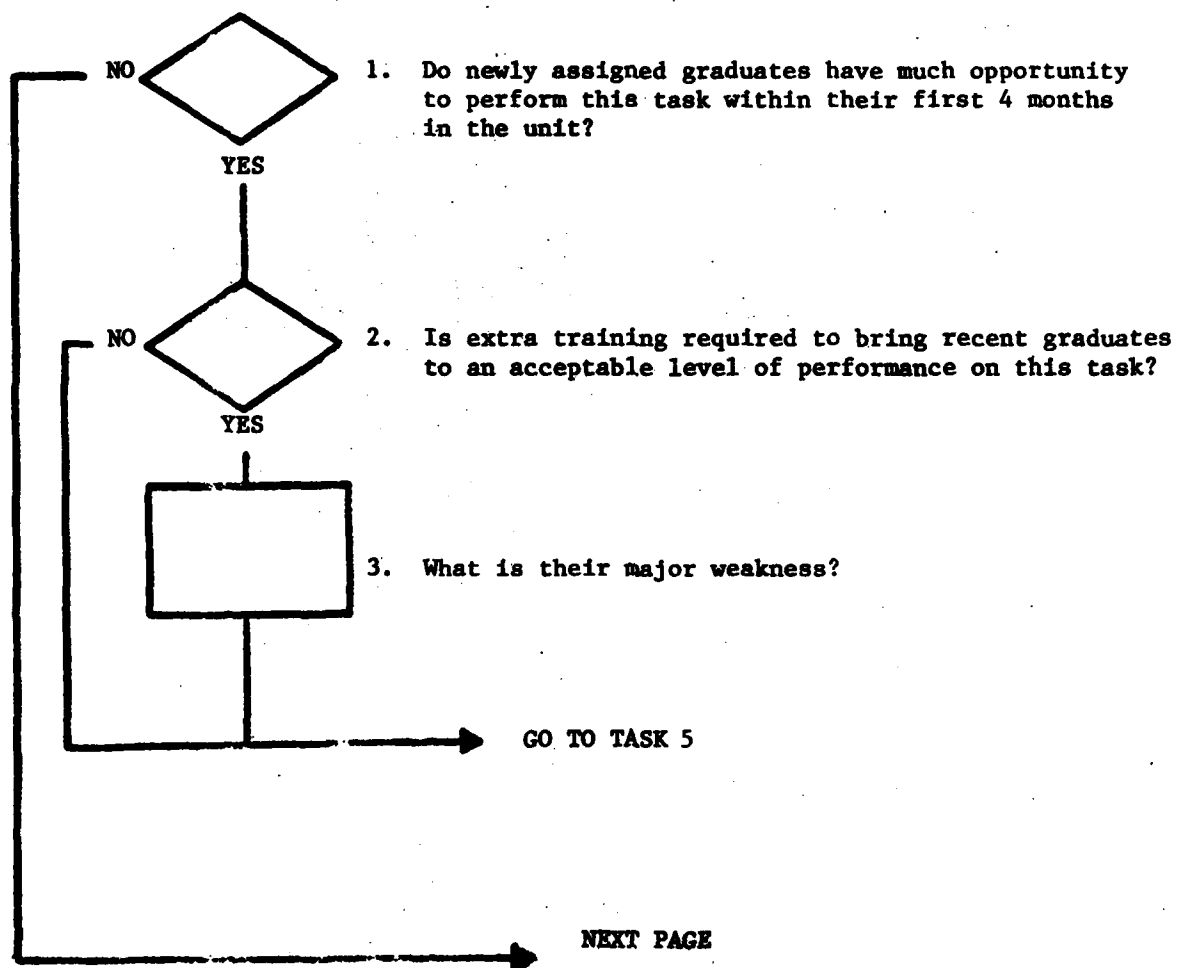


4. SEPARATION BETWEEN IFR DEPARTURES, NON-RADAR

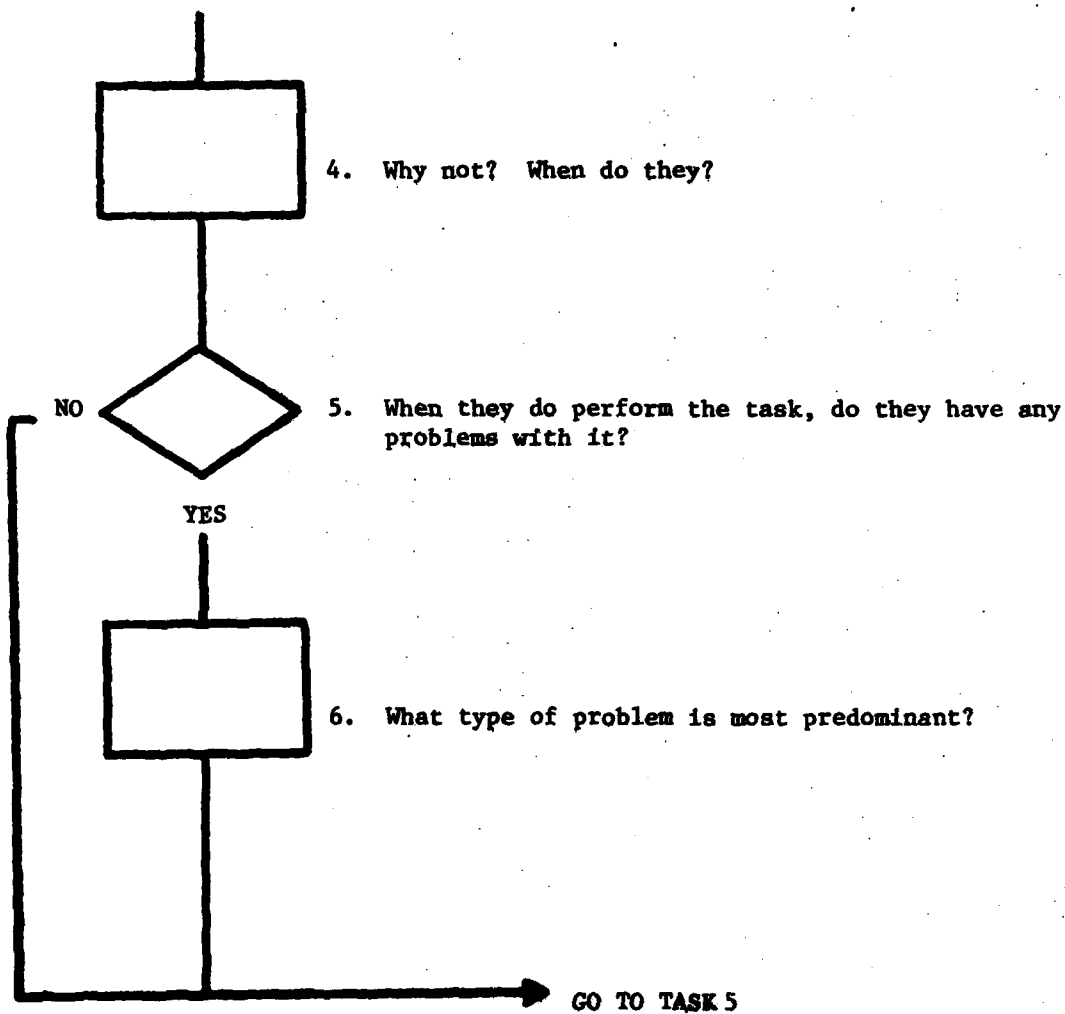
Survey Indications: Undertraining in AIT.

Background: Taught to Soldiers' Manual standards.

Questions:



4. SEPARATION BETWEEN IFR DEPARTURES, NON-RADAR (Continued)

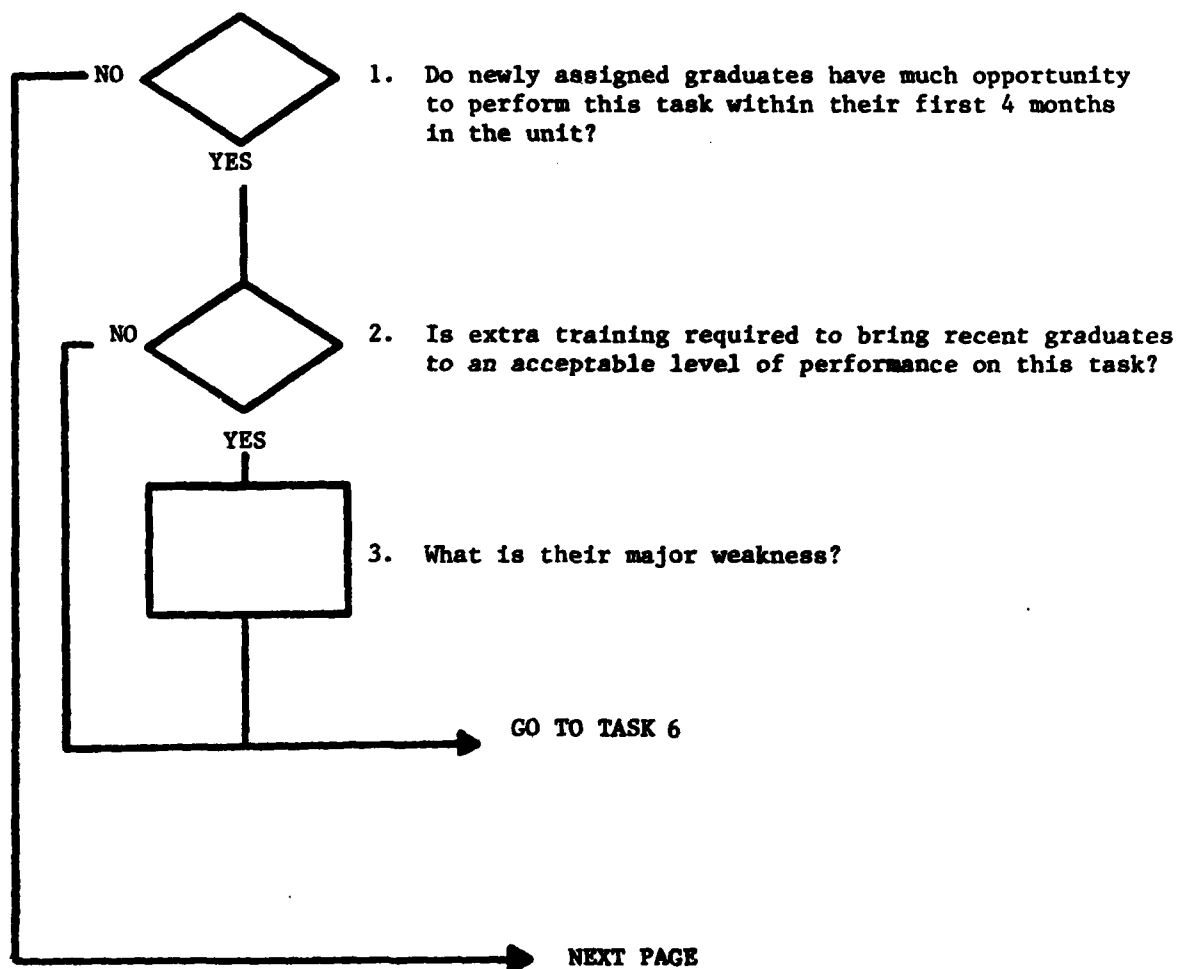


5. SEPARATION BETWEEN IFR ARRIVALS, NON-RADAR

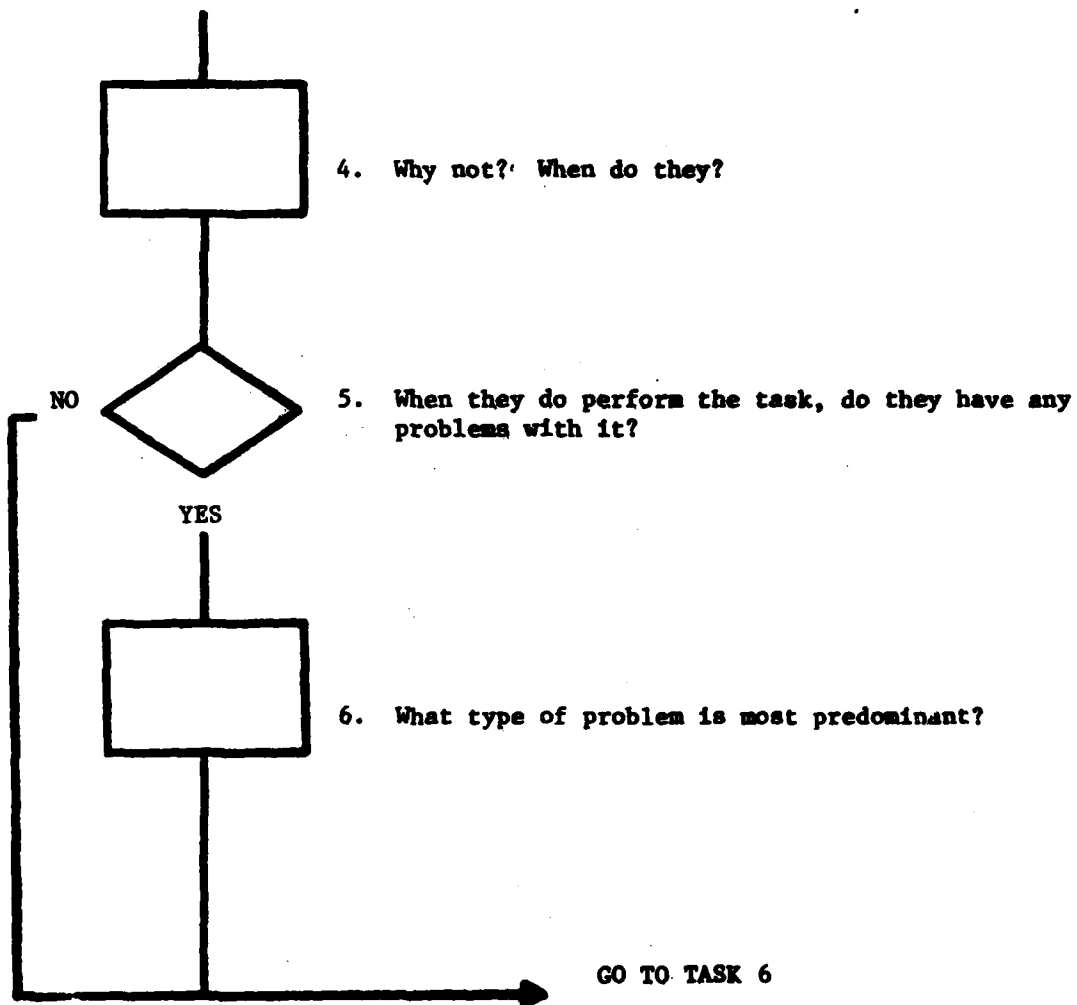
Survey Indications: Undertraining in AIT.

Background: Taught to Soldiers' Manual standards

Questions:



5. SEPARATION BETWEEN IFR ARRIVALS, NON-RADAR (Continued)

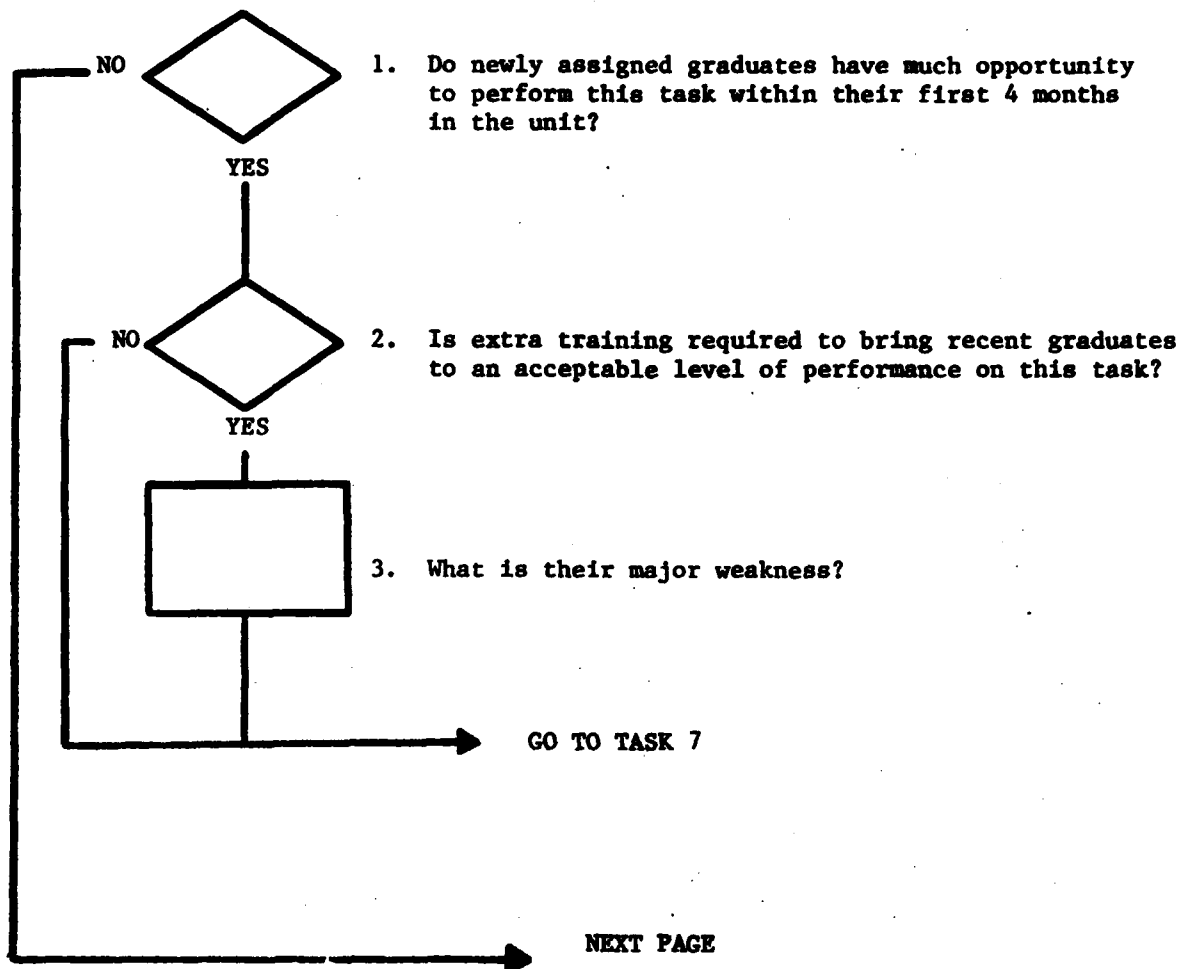


6. HANDLE EMERGENCY

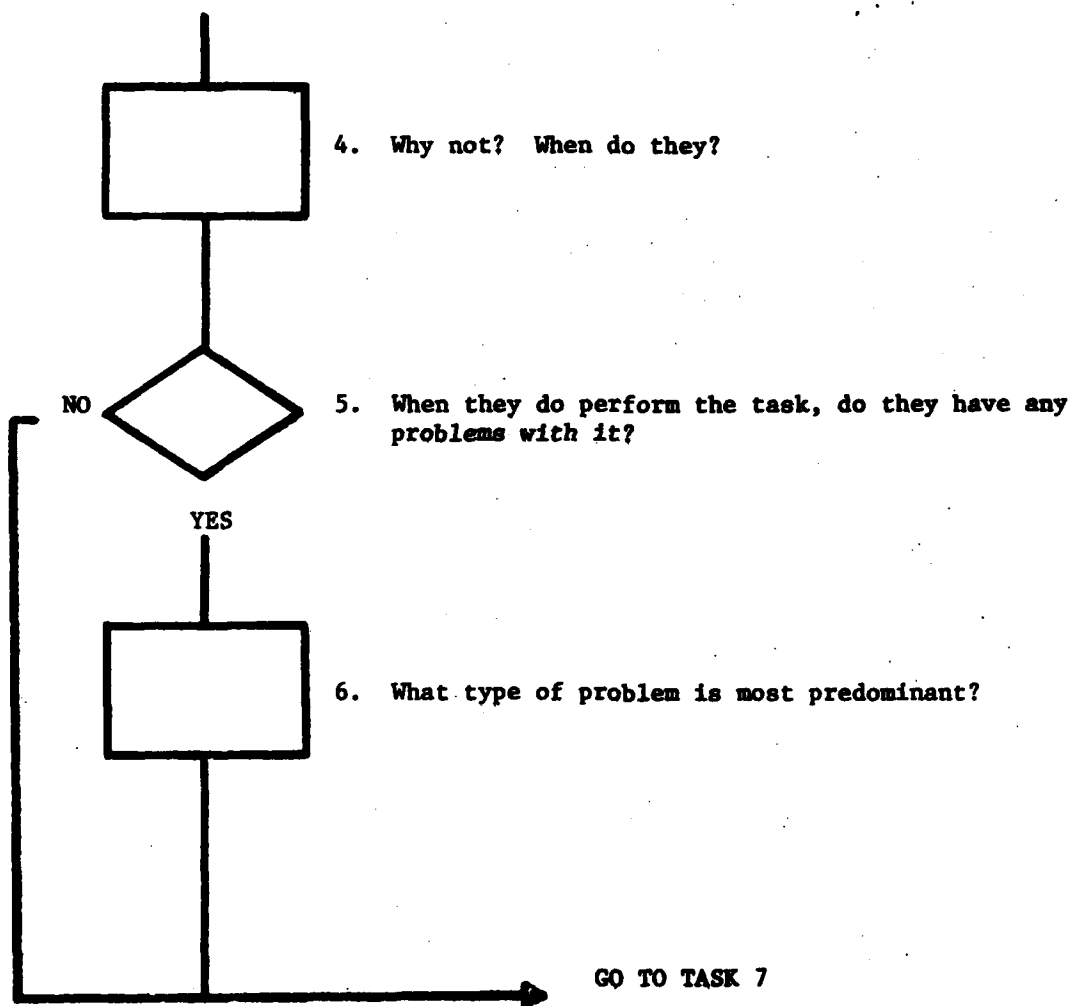
Survey Indications: Undertraining in AIT.

Background: Taught to Soldiers' Manual standards.

Questions:



6. HANDLE EMERGENCY (Continued)

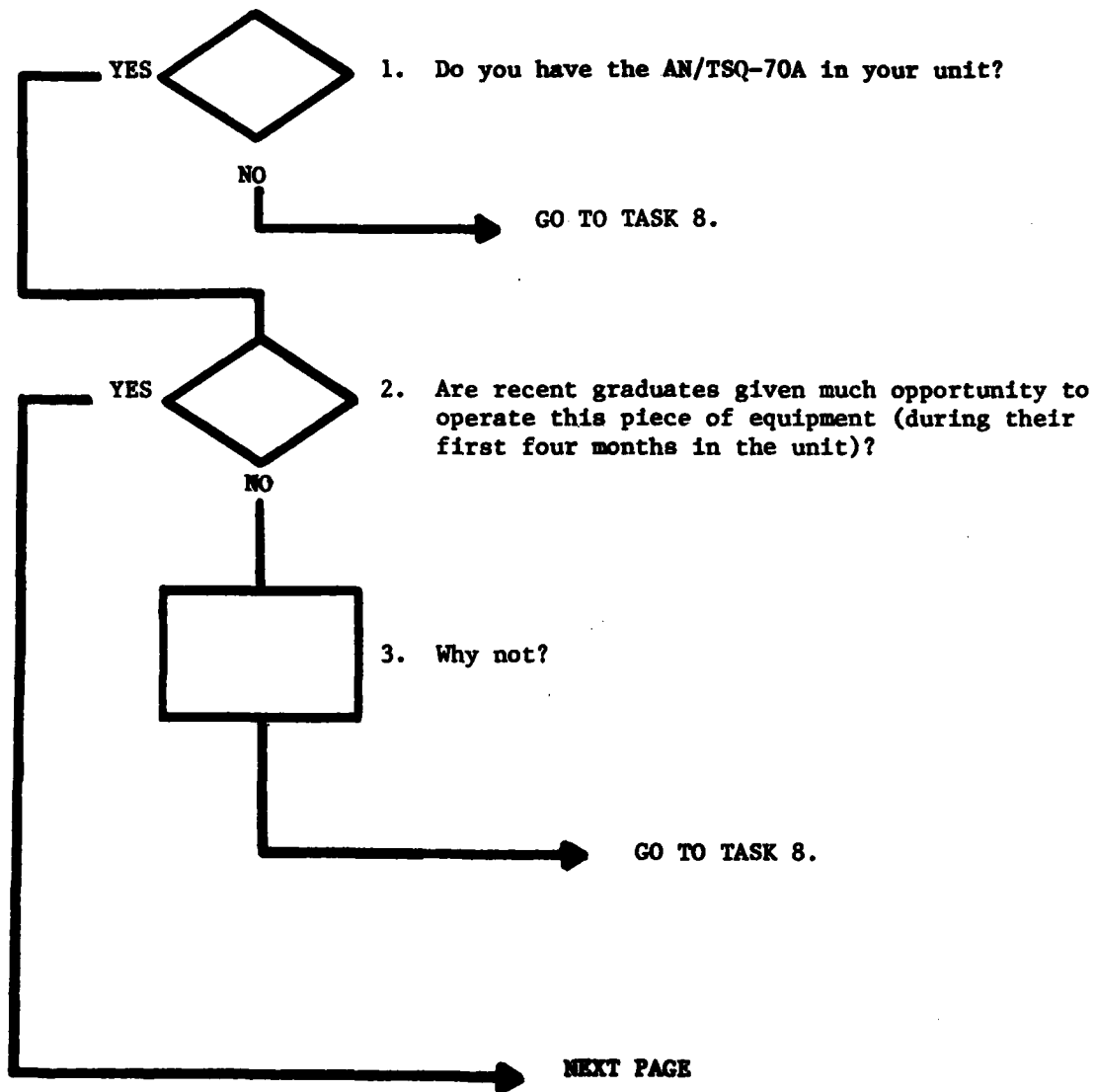


7. OPERATING PROCEDURE AN/TSQ-70A

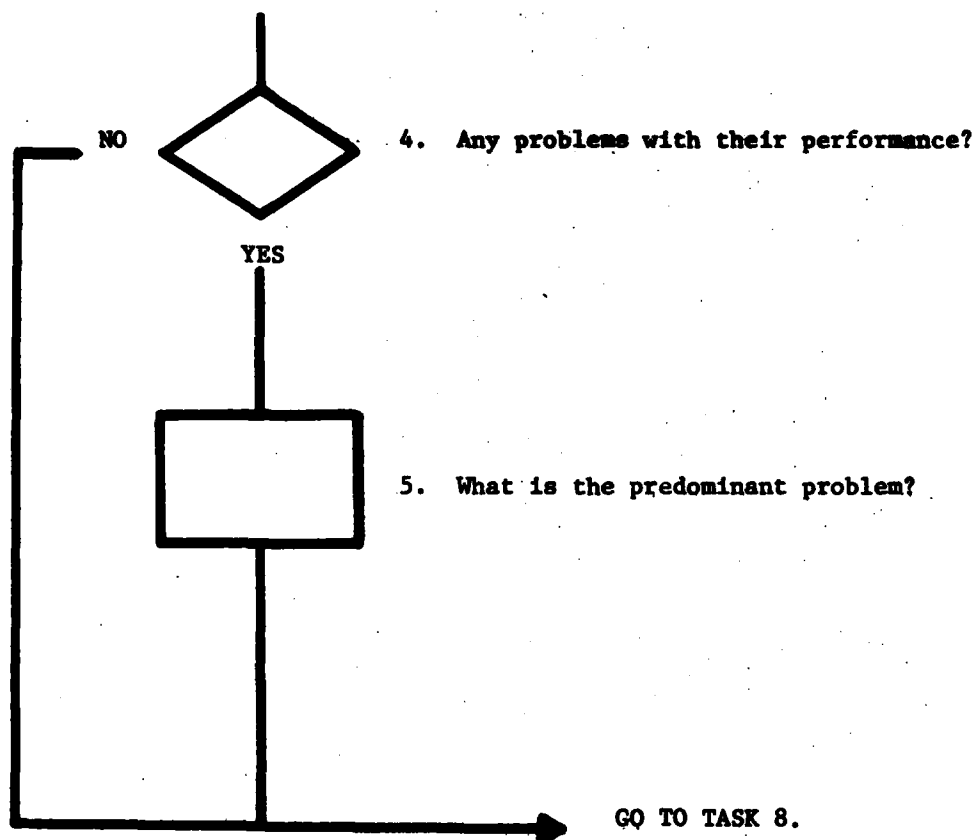
Survey Indications: Nonperformance in field.

Background: Taught to Soldiers' Manual standards.

Questions:



7. OPERATING PROCEDURE AN/TSQ-70A (Continued)

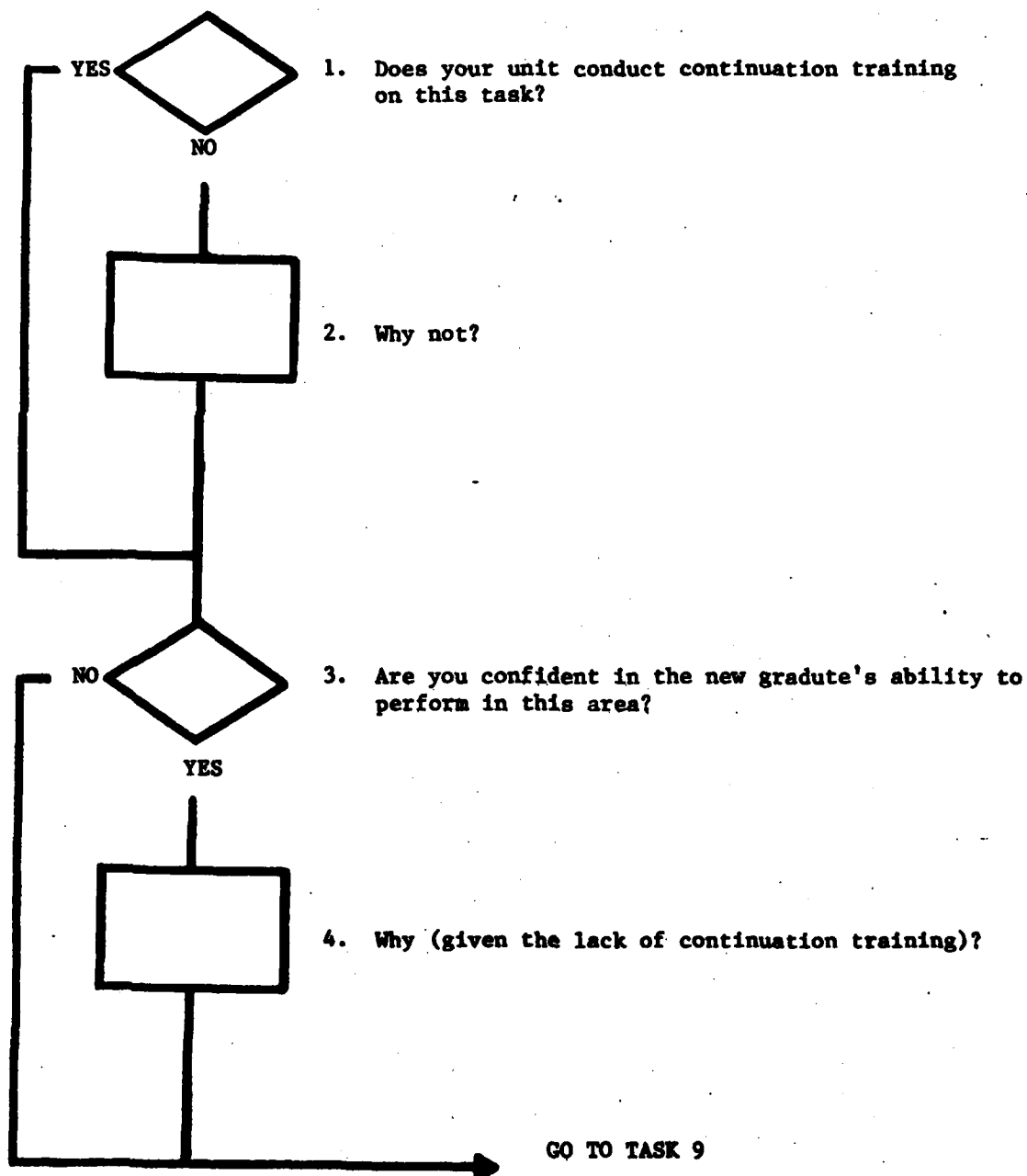


8. DECONTAMINATE SELF/INDIVIDUAL EQUIPMENT

Survey Indications: Undertraining in AIT.

Background: Not trained to SM standards because training kit not available. Original was health hazard. New kit on order and when received task will be taught to SM standards.

Questions:

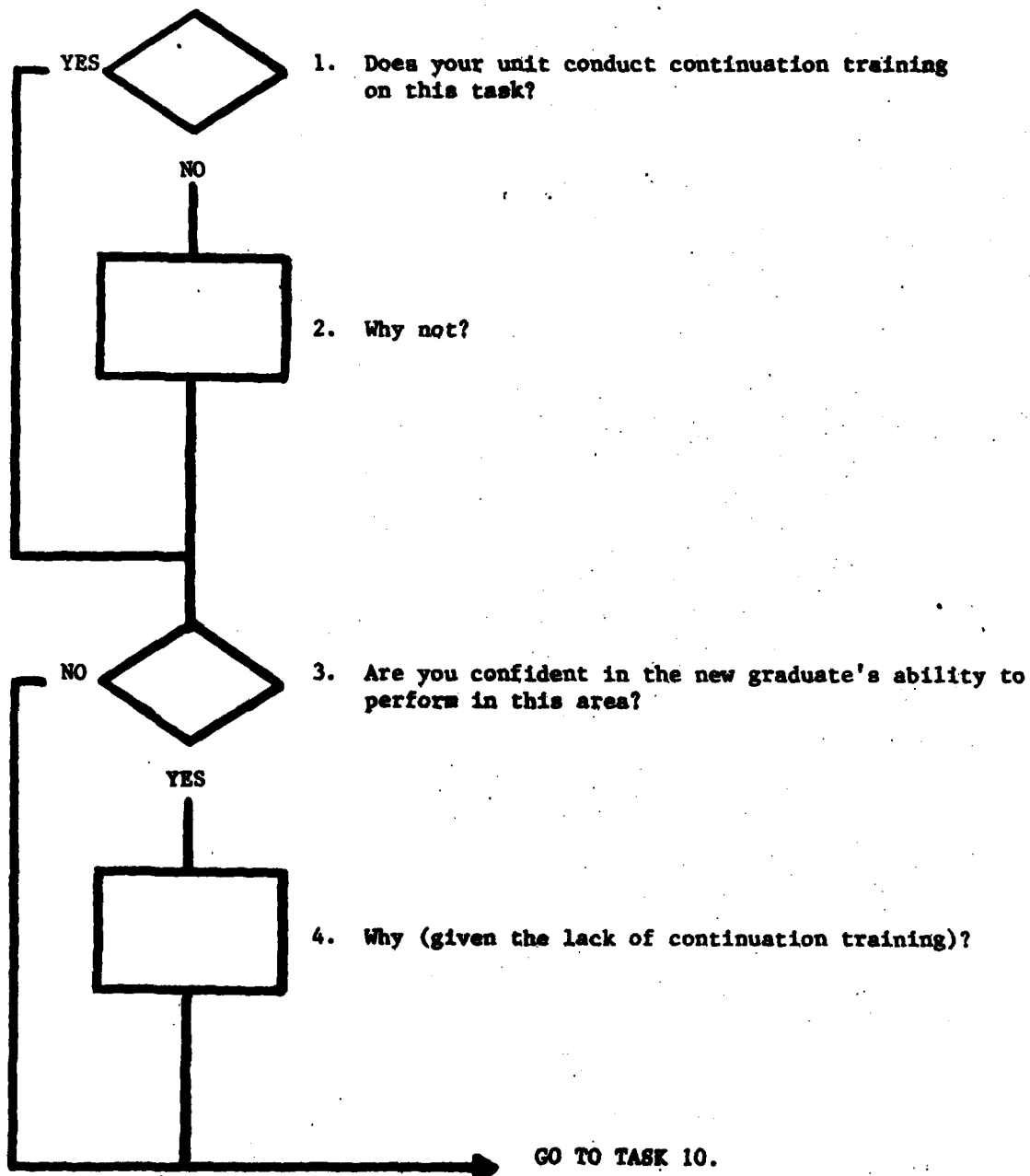


9. PUT ON AND WEAR PROTECTIVE CLOTHING

Survey Indications: Undertraining in AIT.

Background: Taught to SM standards. TEC tape in learning center and practical exercise in tactical phase.

Questions:

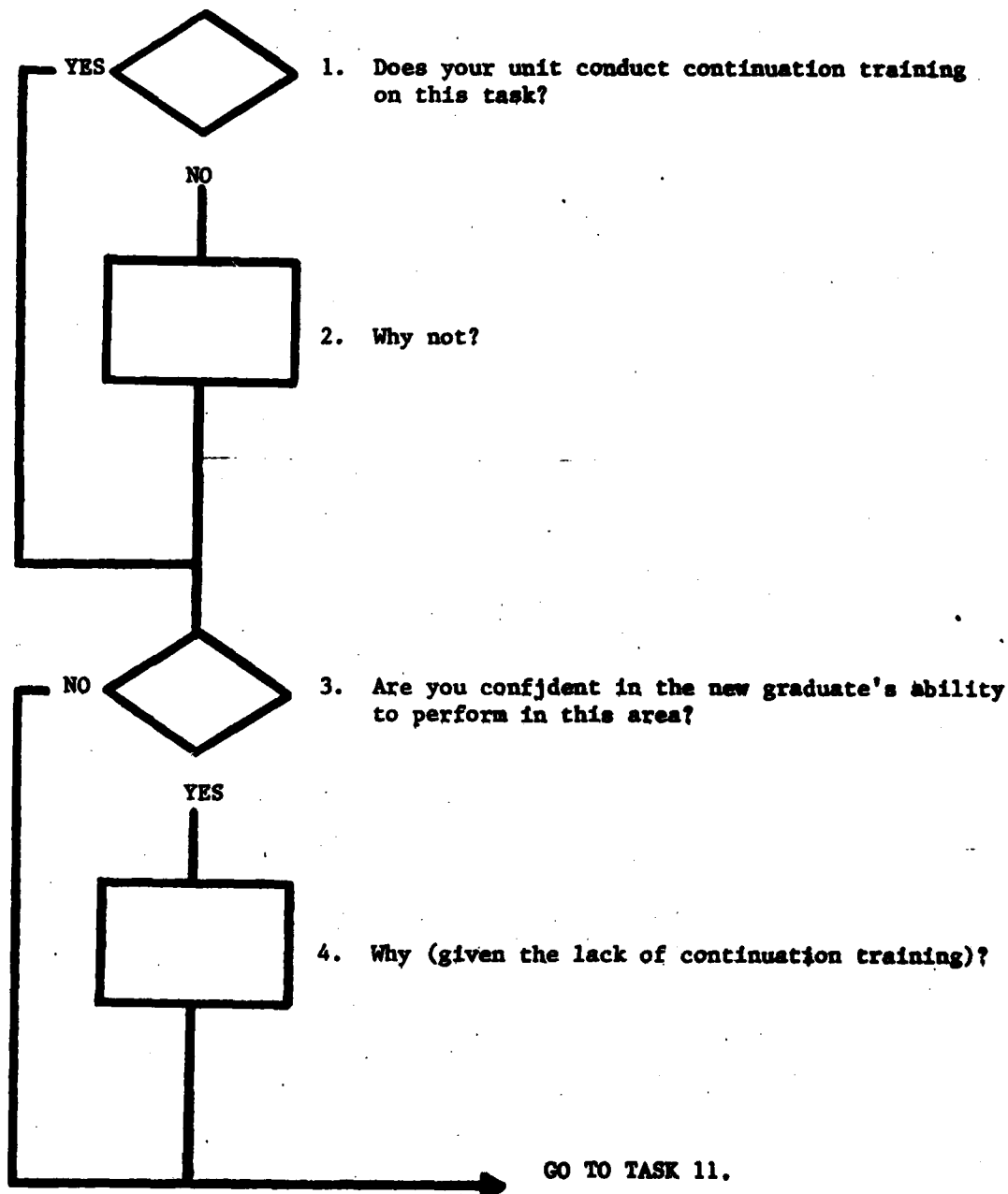


10. APPLY MASK-TO-MOUTH RESUSITATION TO CHEMICAL AGENT CASUALTY

Survey Indications: Undertraining in AIT.

Background: Not taught to SM standards. Task is presented via TEC tapes at learning center. No practical exercise because of sanitary considerations.

Questions:

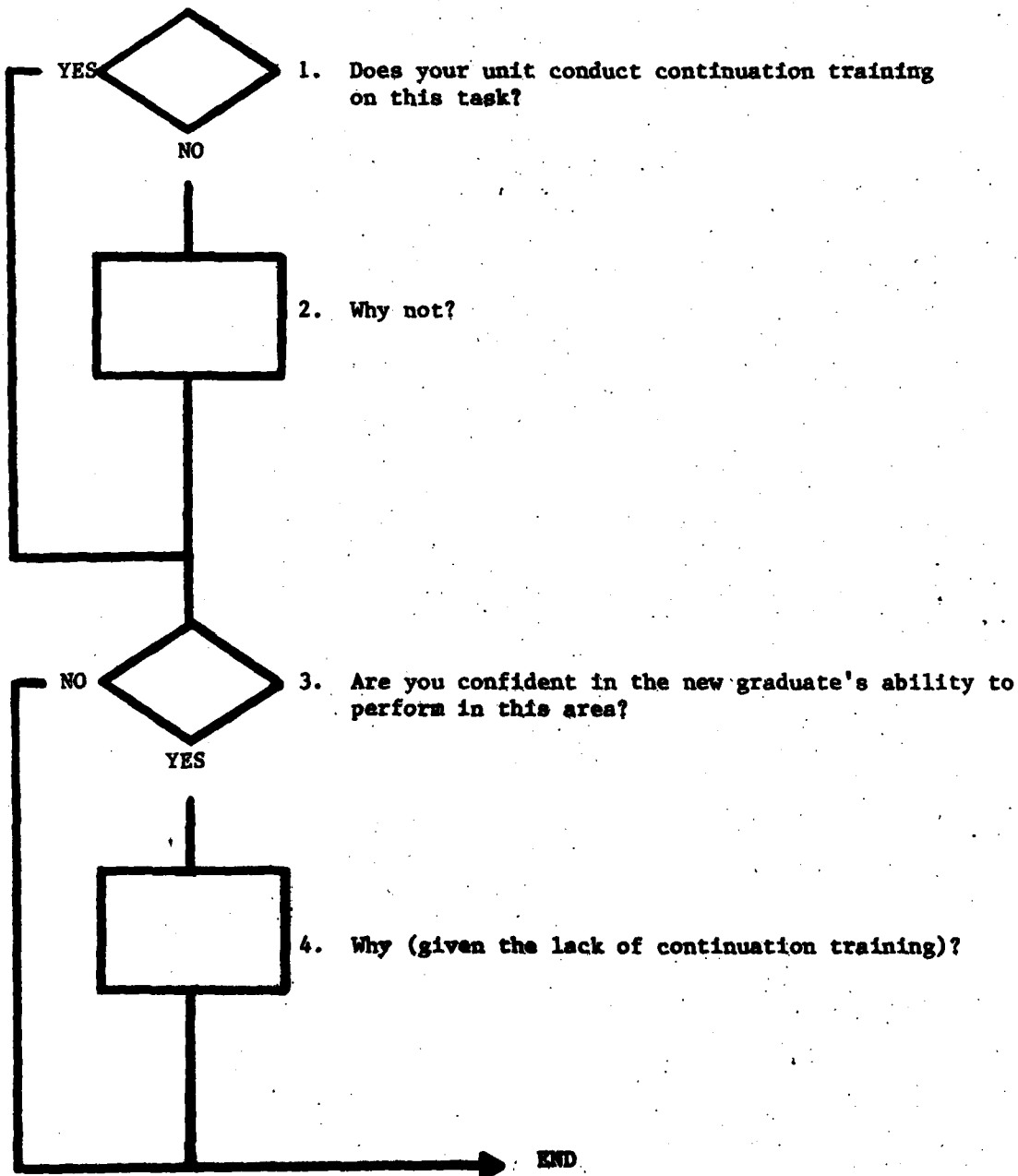


11. BACK PRESSURE ARLIFT ARTIFICIAL RESUSITATION TO A CHEMICAL AGENT CASUALTY

Survey Indications: Undertraining in AIT.

Background: Taught to SM standards. TEC lesson at learning center and practical exercise in tactical phase.

Questions:



APPENDIX F

REFERENCES

1. AR 600-46, Attitude and Opinion Survey Program, Department of the Army, 1 November 1978.
2. Aviation Center Training Analysis and Assistance Team: Fort Lewis Report, U.S. Army Aviation Center, Ft Rucker, AL, February 1981.
3. Aviation Center Training Analysis and Assistance Team: Korea WESTCOM Report, U.S. Army Aviation Center, Ft Rucker, AL, March 1981.
4. Aviation Center Training Analysis and Assistance Team: USAREUR Report, U.S. Army Aviation Center, Ft Rucker, AL, January 1981.
5. FM 1-93H 1/2, Soldier's Manual: Air Traffic Control (ATC) Tower Operator, Skill Level 1/2, MOS 93H, Department of the Army, December 1979.
6. Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K., & Brent, D.H., Statistical Package for the Social Sciences, McGraw-Hill, 1975.
7. Pam 325-5, Federal Statistical Standards, Department of the Army, 13 August 1975.
8. Program of Instruction for 222-93H10 Air Traffic Control Tower Operator Course, MOS: 93H10, U.S. Army Aviation Center, Ft Rucker, Alabama, May 1980.
9. Siegel, A.I. Beryman, B.A., Federman, P., & Sellman, W.S., Some techniques for the evaluation of technical training courses and students (AFHRL-TR-72-15). Lowry AFB, Co.: Technical Training Division, Air Force Human Resources Laboratory, February 1972.
10. TOE 01-227H700, ATC Company (Forward), Department of the Army, 23 January 1981.
11. TRADOC Pam 350-30, Interservice Procedures for Instructional Systems Development, Department of the Army, August 1975.

APPENDIX G DISTRIBUTION

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