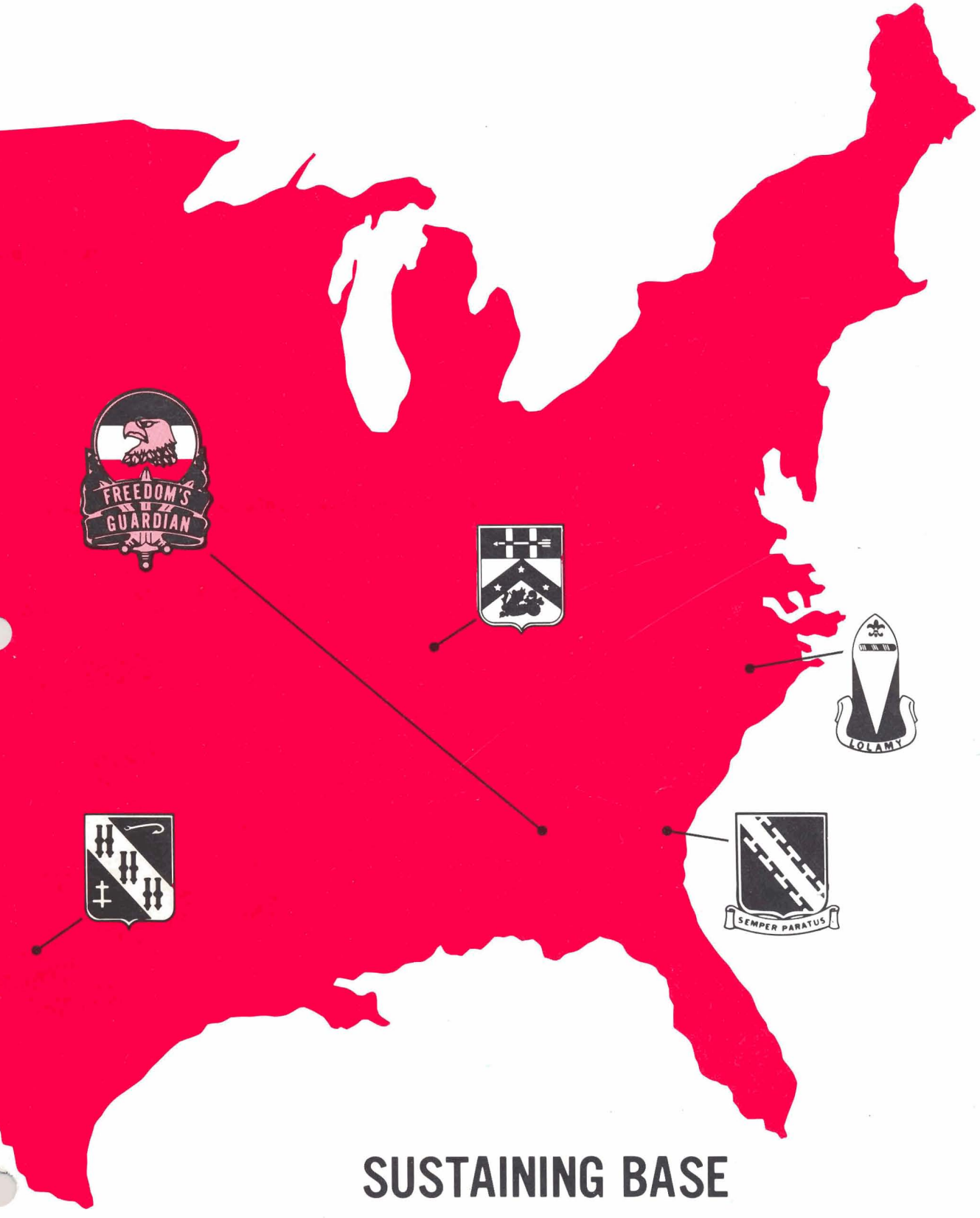
JANUARY — MARCH 1980

AIR DEFENSE MAGAZINE



SUSTAINING BASE (ADA FORSCOM UNITS)

Commandant
MG JOHN B. OBLINGER, JR.

Assistant Commandant

Directorate
of Training Developments
COL NORMAN R. LAWRENCE

Editor
W. E. SANFORD

Assistant Editor
JUSTIN R. ORMSBY

Editorial Assistant
PEGGY E. WORDSWORTH

Deputy Director, and Chief
Course Development Division
COL Robert W. Purdon

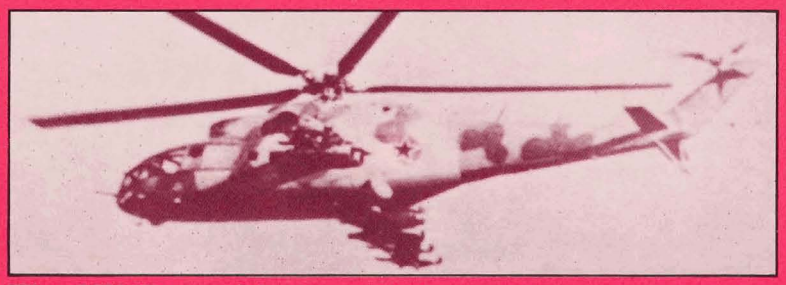
Chief, Program Management Division
LTC Robert C. Fischer

Chief, Training Literature Division
LTC Terrence L. Roche

Chief, Training Analysis and Design
Division
LTC Richard D. Stageberg

AIR DEFE

FEATURES



The HIND — Myths and Facts 12

TASVAL 26

Nondivisional Chaparral/Vulcan 30

COVER: Our cover is designed to pay tribute to the combat soldiers of the ADA FORSCOM units who stand ever ready to plunge into action in defense of our nation.

NSE
MAGAZINE

ARTICLES

ATLAS 7
Need and Value of Service to Country 15
History of Air Defense 16
Individual Learning Center 19
Army Correspondence Course Program 20
The Civilian Cadre 23
View From the Field 34
The Air Force Connection 36
Nuclear Surety Inspection 37
Aircraft Recognition Quiz 40
ADA Lineage and Honors 41

DEPARTMENTS

Intercept Point 2
Engagement Zone 4
Planning 45
Enlisted Career News 48
Bars to Stars 50
Combined Arms Corner 52
Developments 54
Intelligencewatch 56
Books 58
Senior Air Defense Artillery Commanders 61

AIR DEFENSE Magazine is published quarterly by the US Army Air Defense School to keep air defense personnel informed of the latest tactical, doctrinal, and technical developments in air defense worldwide, and to maintain a stimulating and mutually productive dialog between the School and units in the field, with a view toward increased efficiency in all aspects of air defense.

Distribution will be made only within the School, except for distribution on a gratuitous basis to Army National Guard and USAR schools, Reserve component training and ROTC facilities, and as requested by other service schools, CONUS armies, Active Army units, major oversea commands, and military assistance advisory groups and missions.

Unless copyrighted or syndicated, material may be reprinted. Please credit AIR DEFENSE Magazine and the author.

Articles appearing in this publication do not necessarily reflect the position of the US Army Air Defense School or the Department of the Army.

Articles and letters should be addressed to: The Editor, AIR DEFENSE Magazine, USAADS, ATTN: ATSA-TD-LITS, Fort Bliss, Texas 79916.

Use of funds for printing of this publication was approved by Headquarters, Department of the Army, 31 May 1978, in accordance with AR 310-1.

Subscriptions may be obtained through the Custodian, US Army AIR DEFENSE Magazine Fund, USAADS, ATTN: ATSA-TD-LIT, Fort Bliss, Texas 79916. The rate is $4.00 per year. Make checks payable to: Treasury of the United States.

Controlled Circulation postage paid at El Paso, Texas. (USPS 307-010)

USAADS

Deputy Assistant Commandant
COL B. J. MENDHEIM

Directorate of Evaluation
LTC R.B. Wessling, Jr.

Directorate of Combat Developments
COL Robert P. Woods

Directorate of Support
LTC Michael J. McKay

Directorate of Training
COL J. D. Frydendall

Tactics Department
LTC John R. Pipkin

Roland/DIVAD/ CV Department
LTC William P. Merritt

Herc/Patriot Department
LTC Donald R. Terpak

Hawk Department
COL James J. Kernan

1st Air Defense Artillery Training Brigade
COL John F. Crater

The School Brigade
COL J. Lapsley Smith

USAADC AND FT. BLISS

Commanding General
MG John B. Oblinger, Jr.

Deputy Commander
COL Marvin E. Simmons

Chief of Staff
COL J. Hollis V. McCrea, Jr.

Headquarters Commandant
LTC Matthew R. Anderson

11th Air Defense Artillery Group
COL Joseph W. House

3d Armored Cavalry Regiment
COL Richard G. Cardillo

Range Command
COL F. W. Atkinson, Jr.

OTHER MAJOR ACTIVITIES

Commanding General, German Air Force Training Command
BG Hans-Ulrich Flade

Commandant, German Air Force Air Defense School
COL E. Nemitz

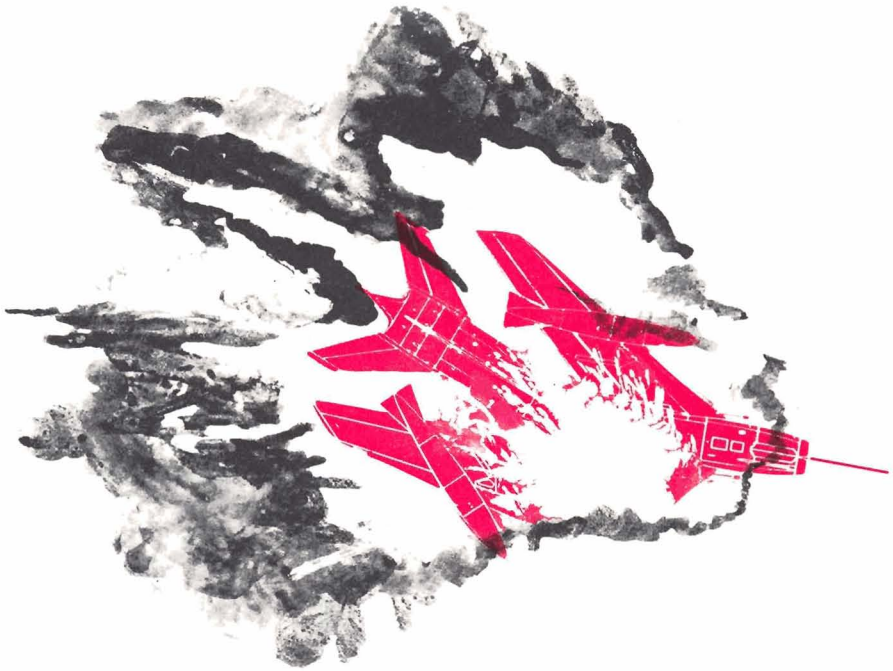
Commandant, US Army Sergeants Major Academy
COL Joseph Ostrowidzki

President, US Army Air Defense Board
COL J. C. Crosby

TRADOC SYSTEM MANAGERS

ROLAND - COL Russel W. Parker
PATRIOT - COL Samuel L. Hayton
DIVAD GUN - COL G. C. Mahan
STINGER - COL J. E. Caudill

As of 1 February 1980



INTERCEPT PO

MAJOR GENERAL JOHN B. OBLINGER, JR.

The traditional role of the service school in the US Army is support for the commanders and troops in the field. I want to emphasize our complete dedication to that important role and also emphasize the efforts we are taking to insure that our air defense troops are among the best-trained soldiers in the field. We will use every resource at our disposal to further these efforts. However, the greatest benefit from our training programs will only follow a stimulating and mutually productive dialog between the School and the field.

Although courses being taught at the US Army Air Defense School are fully validated, your feedback might indicate a need for adjustment that would improve the system. An example of the benefits of comments from the field is the tactical SOP Course we are developing now. The amount of feedback used in initial development or revisions of training courses depends heavily upon how vigorously commanders of deployed units communicate their needs and ideas.

I am aware that you in the field may feel you are being inundated by training responsibilities, requirements, and materials. However, you should be aware that the amount and type of instruction we can provide the individual soldier here at the School are influenced by our resource authorization and availability. Money, facilities, and the availability of tactical fire units to support field exercises are among the constraining factors, as are our trainer personnel authorizations and relative priority of fill. Resident instruction course lengths and the benefits derived from collective training in a field environment also weigh heavily in determining what should be taught here, and what can best be accomplished in the field. Because training is the key to success on the battlefield and also the key to our soldiers' career progression, a substantial percentage of the School's manpower resources is dedicated to the development of exportable training products. The How-To-Fight Manuals, for instance, provide you with the doctrine, tactics, and procedures that are the basis of your tactical training. The Army Training and Evaluation Programs provide you with guidelines for evaluating the state of training of your unit and enable you to structure a training program to correct the deficiencies you detect. Training of the individual soldier is supported by Soldier's Manuals, Job Books, and Army Extension Training Material. Your soldiers' training status and job skills are evaluated through School-produced Skill Qualification Tests. All of these products result from our collective best efforts. Proper use of these materials cannot help but produce better-trained soldiers in better-trained units.

Training support doesn't end with the products already discussed. Training devices, simulators, motion pictures, TV tapes, TEC programs, and other training hardware are constantly being produced to upgrade your training capability. The School is on your side and is driving to give you what you need to field a combat-competent unit.

Carrying this line of thought further, package training of personnel for transition from Basic to IHawk batteries, which was instituted a few years ago, has proved so successful that we intend to keep

the technique in effect wherever possible. Facilities and available personnel should permit us to continue this method of training replacement personnel, now that all Hawk units are staffed with IHawk-trained people.

Advanced Officer Course students and those who attend the Precommand Course will receive instruction in training management and in battalion training management systems. This instruction will equip them to use the materials we've prepared for training on-site and at the locations of other deployed units.

This year, we begin instructor and key personnel training for new air defense systems. All our efforts are geared to an improved training system, which involves export packages for existing and upcoming systems such as:

- ☐ The Moving Target Simulator (MTS), including Stinger modification.
- ☐ Vulcan Training System.
- ☐ AN/TSQ-T3 Trainer for Chaparral.
- ☐ Hawk AN/TPQ-29 Simulator.
- ☐ Nike Hercules AN/TSQ-T1 Simulator.
- ☐ DIVAD Gun Troop Proficiency Trainer.
- ☐ Patriot Operator/Tactics Trainer.
- ☐ Roland Operational Trainer Evaluator.

One of our goals is to have all training literature published and in the hands of field units when the new systems arrive. To help support our overall preparation effort, we are gradually decreasing the amount of money and number of people devoted to Nike Hercules and other systems that will be replaced by new products.

While we are caught up in the surge toward new weapon systems (and we are pushing that training decisively), we will nevertheless continue to turn out the required number of best-qualified crews to man our existing systems. The highest density MOS will get first priority on time, materials, and facilities. However, we will train anyone in any needed MOS to the greatest extent possible.

To the commanders, I want to digress for a minute to add that execution of my responsibilities for career management will be pursued vigorously. My actions in this area are always influenced greatly by your views, which I'm sure reflect the observations of your key personnel. But I must remind you that MOS decisions at the School will inevitably be influenced by policies and guidelines issued by the Department of the Army.

Let me reiterate here that a lively stream of feedback from the field is essential to the most successful functioning of the School. The School and its facilities are ready to support you and your command, and we are continually reviewing our ways of doing things to insure the most efficient use of all assets.

John B. Oblinger

ENGAGEMENT ZONE

letters to the editor

BELATED COMMENT

Dear Sir:

I read William Latham's "AUTUMN FORGE 78" (Apr-Jun 79) with great interest. I wish, however, to clarify one rather significant omission in the article. The two principal nondivisional air defense participants were 10th ADA Group IHawk TRIAD battalions: 1st Battalion, 1st ADA, and 2d Battalion, 2d ADA, for the BLUE and ORANGE forces, respectively. In fact, Major General Koehler, Colonel Weathers, and the three distinguished civilian observers visited my battalion operations center, near Homberg, during the first few days of the "war." They also flew over elements of Captain Ahern's battery (AFP-1, Battery A, 2d Battalion, 2d ADA) and visited Captain Kennedy's battery (-) position at Berfa. While there, General Koehler had an opportunity to address Battery C's package crew, one of the two package crews that first arrived in country in April 1978. The picture appearing on page 13, Apr-Jun issue, shows General Koehler with two soldiers in formation, left to right, SP5 Jimmie L. Smith and SP4 James E. Smith. SP5 Smith, MOS 24E20 (Fire Control Mechanic), is a mainstay of the pulse acquisition radar section, having distinguished himself downrange on many occasions. SP4 Smith, MOS 24C10 (Firing Section Mechanic), recently reenlisted in MOS 54E, Chemical Staff Specialist.

During the 2-week exercise, the 2d Battalion, 2d ADA, with two of its three batteries deployed (for the most part in TRIAD configuration), provided low- to-medium air defense coverage for the 3d ADA and other nondivisional ORANGE forces located within the IHawk forward missile intercept zone. This support was provided while completing 61 platoon and battery-size movements and conducting 480 simulated engagements.

Let me add that we appreciate the focus on AUTUMN FORGE 78 and also on the 32d AADCOM and air defense in Europe in your Jul-Sep 79 issue.

JAMES V. SPROUSE, JR.
LTC, ADA
Commander, 2d Bn, 2d ADA

Since writing the foregoing letter, LTC Sprouse has completed a successful tour as battalion commander and is now assigned to Headquarters, 10th ADA Group, Darmstadt, Germany.

ON AIRCRAFT RECOGNITION

Dear Sir:

I am a Redeye section leader with the 4th Battalion, 54th Infantry (M), at Fort Knox, Kentucky. Being with a FORSCOM unit on a TRADOC post presents some unusual training challenges. We often have all our M151s and half the section on tasking requirements, so we rarely get a chance to train in the field as a complete unit. In spite of our lack of training time, we still have a good section because we try to get maximum use of our training time through planning interesting and

challenging task-related training. Your assistance in this training is requested.

Although we don't get AIR DEFENSE on a regular basis in my unit, the various learning centers available to us do. Your aircraft recognition quiz section is often used to spot check my men on visual aircraft recognition, and it is about that section I am writing to you. For one of our trips to the field I am trying to put together a comprehensive program to simulate an active air defense environment in which to train my men. The program would be run as follows: At the release point, each team would be given a number of sealed envelopes bearing track numbers and containing a photograph like those you show in your aircraft recognition quizzes. The section headquarters would listen to a prerecorded tape simulating the C/V early warning net. The section headquarters would then plot the targets or tracks on GEOREF and map boards and pass early warning and engagement instructions on to the firing units. Upon alert, the team would open the envelope, identify the aircraft, and take appropriate action. After the engagement, the teams would submit an after-action report and prepare to continue their missions.

You could help this program by sending us copies of the photographs used for your quiz sections and, if possible, any other related material. I plan to request that the Tactics Department prepare the tape so it would come as new information to the section headquarters. In my opinion, this package would be timely, interesting, and challenging. The package would also give the section sergeant and me a good training evaluation indicator.

One more thing, could you please print more articles on training tips for Redeye or training aids implementation for Redeye? Your article on AGES, for instance, was interesting but at my level we could never get the materials or aviation support to do anything like it. We require simple, low-support, need-oriented articles. I realize the need for things like AGES, but please don't forget the air defenders in the alien world of the other combat arms.

BRADDEN L. JENISON
2LT, ADA
4th Bn, 54th Inf (M), CSC
Fort Knox, KY 40121

We have complied with Lieutenant Jenison's request for material to support his training program and will assist anyone else in any way we can. Regarding tips on Redeye training, we are always on the alert for training tips of all sorts. In that connection, we invite airdefensemen everywhere to send us their ideas for evaluation. Those having wide interest will be published.

— Ed.

ANOTHER "AIRLIFT"

Dear Sir:

Enjoyed your October-December 1979 issue — the most informative and comprehensive to date. Of particular interest was the article on FAAR Airmobility Tests conducted by the 101st Airborne (Airmobile) Division. I thought you might like to know that the 1st Battalion, 59th ADA, 8th Infantry Division, conducted a successful "Field Expedient" airmobile emergency recovery operation of a FAAR in June 1978. The operation was required to prevent the FAAR from sliding down a vineyard in Germany.

ALBERT G. BRAUER II
CPT, ADA
APMS

Great for the grapes, but not bad for the FAAR either. I've seen those vineyards in Germany. Thanks for your interesting report.

— Ed.

THE "CHAPARRAL 5000"

Dear Sir:

Squad spirit and integrity have always been key factors of successful Chaparral/Vulcan units. To operate effectively as a combat unit, the squad must be a team, always working together toward a common goal: a combat-ready squad.

Charlie Battery (Chaparral), 5th Bn, 52d ADA, at Fort Stewart, Georgia, has developed an event that has helped to strengthen the teamwork within its squads. It is known as the "Chaparral 5000," a take-off on the "Tanker's 5000" that CPT Charles Simpson, Battery Commander, first observed in Germany. Besides team spirit, the "Chaparral 5000" provides physical training, can be used to increase the soldiers' skills, and is an excellent way to wind down a long week.

The "Chaparral 5000" is normally held every 2 months. As champions, the squad winning this coveted title gets its members' names engraved on a handsome plaque that sits in the battery orderly room. Additionally, a 3-day pass is awarded to members of the winning squad, and the platoon with the best squad average holds a rotated trophy. The result is a highly motivating afternoon the troops look forward to, with obvious benefits. The total time involved in a well-run event is 2½ hours, plus approximately 30 minutes required to set up the field. The "5000" can be held almost anywhere, from a motor pool to the middle of a field training exercise.

The following materials are normally required:

☐ The Chaparrals with cargo cover.

☐ Three M30 training missiles without wings or fins.

☐ Three track shoes with pads.

☐ Three ratchets with sockets for track pads.

☐ Engineer tape (white), tape measure, and stop watch.

☐ Field table.

The field for the event is set up as shown in figure 1. Engineer tape is used for boundaries. Nonparticipants must remain outside the tape.

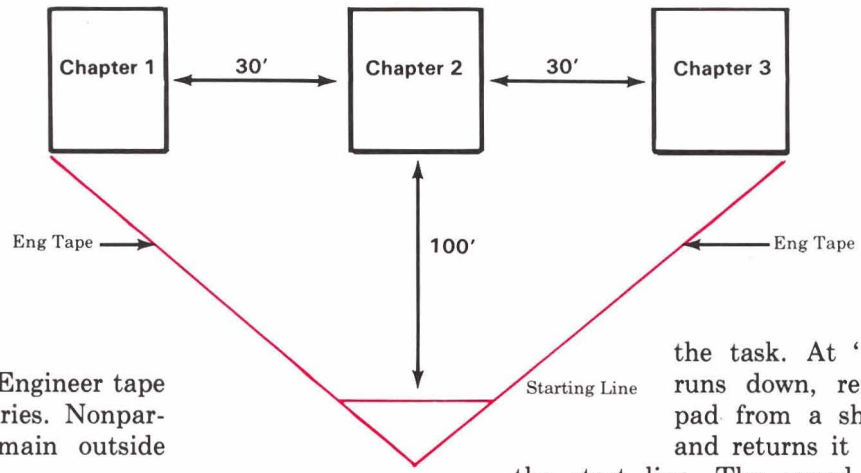


Figure 1

Scoring is done by adding the scores for each squad, the winner being the one with the highest score. Five-man squads are preferred; however, the events can be easily performed by four-man squads/crews.

Basically, the "5000" includes five tasks, but two alternates can be used in the event of equipment shortages or to change the format. Following are the basic events and scoring:

☐ MISSILE PRESS. An M30 training missile (without wings and fins) is held at chest level by four members of the squad. The squad leader (if 5-man squad) is the coach. The squad members are given 1 minute in which to press the missile over their heads as many times as possible. The missile must go over the heads and under the chins of the two end personnel.

Scoring. 10 points are awarded for each time the missile is pressed over the heads of the two end personnel.

☐ TRACK SHOE TOSS. The object is to throw a Chaparral track shoe as far as possible. One man from each squad stands at the starting line and throws at the center Chaparral. He gets two throws, with the best throw counting. Throws that land outside the engineer tape do not count, nor do throws where the contestant steps over the starting line.

Scoring. 5 points per full half-foot (6 inches) measured from the nearest point of the shoe when it stops.

☐ CHAPARRAL LOW CRAWL. One man from each squad performs this event. The runner begins at the starting line and runs down and crawls underneath each Chaparral, entering from the front. After he has crawled under each vehicle, the runner returns to the starting line where he is timed.

Scoring. 5 points for each second the runner takes is subtracted from 1,000 points. This is the squad's score.

☐ TRACK PAD CHANGE. Three squads can do this event at the same time. The object is for the squad to change a track pad as rapidly as possible and return to the starting line. The squad begins at the starting line with the necessary tools for the task. At "GO," the squad runs down, removes the track pad from a shoe of its choice, and returns it (with nut) across the start line. The squad is then given a new track, pad, and nut. After this pad is installed (tightened) the whole squad returns to the start line where its time stops. Many crews have put the pad on backwards. There is a 100-point penalty for this mistake.

Scoring. 5 points for each second the squad takes is subtracted from 1,000. This is the score for the squad.

☐ CARGO COVER REMOVAL. Three squads can do this event at the same time. The object is to remove the cargo cover from a covered Chaparral and fold it, store the bows and stanchions properly, and return to the starting line. Penalty points may be subtracted at the judge's discretion for sloppy folding or misplaced or misused equipment.

Scoring. 5 points for each second the squad takes is subtracted from 1,000. This is the squad's score.

☐ ALTERNATE EVENTS.

Breaker Bar Toss. The breaker bar (crowbar) is tossed by a squad member from the starting line, just as a javelin is tossed. Ten points are awarded for each whole foot, plus 5 points for an additional 6 inches.

Missile Reload. Performed as prescribed in FM 44-4, with 1 point per second subtracted from 1,000 for each second required.

Although these events are for Chaparral crews, similar drills could be devised for Vulcans or other weapon systems. The "Chaparral 5000" has proved most successful for Charlie Battery, and we fully plan to use it in the future. It is an effective training and morale tool we feel could also benefit other units.

PAUL BACON
CPT, ADA
Btry C, 52d ADA
Fort Stewart, GA 31313

ATLAS

THE NEW DIRECTION IN AUTOMATIC TESTING

CW3 Dennis A. Harris

Are you a battalion commander, battery commander, platoon leader, or platoon sergeant responsible for a $2 million weapon system? Are you a section chief or console operator responsible for the operation of that $2 million weapon system? Or are you the maintenance warrant or repairman responsible for fixing that $2 million weapon system when it malfunctions? If you can answer yes to any of these questions, this article is for you.

Each year the US Army adds new and more complex equipment to its inventory. This equipment must be operated and maintained by soldiers who have a minimum of training and experience. The military, along with civilian industry, has developed a wide range of sophisticated digital test equipment. Computers were added to assist in controlling the digital test equipment, and we now find that many of our new weapon systems include automatic test equipment (ATE).

Computer languages were developed for specific applications — COBOL for business problems and FORTRAN for scientific problems. Abbreviated Test Language for All Systems (ATLAS) is a standardized language for expressing equipment test requirements and procedures. ATLAS uses terms and expressions that describe testing relative to the unit under test (UUT) and without dependence on any particular type of test system. ATLAS has come to serve as a standard language for designers, testers, and operators to use in the preparation, documentation, and implementation of test specifications and procedures.

More than 25 test systems and computer manufacturers offer ATLAS software systems. The British and German Ministries of Defense have selected ATLAS software for their military and commercial programs. The French aircraft industry has also invested in ATLAS software. In 1976, the US Department of Defense (DOD) approved ATLAS as an interim standard language for ATE. Several other ATE test languages, such as VATE, VTRAN, OPAL, and ELAN, are available and currently in use within DOD. In 1978, recognizing the training cost impact of having so many different ATE test languages, DOD specified that ATLAS would be the standard for all new systems. ATLAS is made up of five major interrelated elements. These basic elements are test actions, test signals, rules, input/output and data processing.

TEST ACTIONS

ATLAS specifies an exact sequence of test equipment independent actions at the unit under test and the test system. These actions are called verbs in ATLAS, signal-oriented and nonsignal-oriented. Signal-oriented verbs are test actions and are similar to the steps a maintenance man would take in testing equipment. The nonsignal-oriented verbs are generally used in input/output or data processing functions. There are two types of signal-oriented verbs. One is single action, which includes those test actions that cannot be further subdivided with respect to the UUT. The other is multiple action, which includes those test actions that are a sequence of signal-oriented, single action verbs, and data processing functions. The single action verbs are:

CLOSE. To initiate or gate a test system source, sensor, or load function to the UUT. The gating capability is usually represented as a master switch for each function.

CONNECT. To fasten or join together the interface points, pins, or connectors of the UUT and the interface points of the test system.

DISCONNECT. Opposite of CONNECT.

OPEN. To turn off or inhibit a test system source. Opposite of CLOSE.

READ. To establish the present value of a sensor function, that exists at the exact instant of measuring, and retain that value.

SETUP. To set or adjust a source, sensor, or load function relative to the UUT.

Multiple action verbs are the most commonly used test actions since they incorporate several specific steps that a technician would be required to take. The multiple action verbs cause several single

000100	CONNECT,	AC SIGNAL,	VOLTAGE	MZX 110V ERRLMT ±2 PC,	CNX HI J1-A LO J1-C	$
Statement Number	Verb	Noun	Noun Modifier	Statement Characteristic	Connection Field	Statement Terminator

Figure 1

The Elements of an Atlas Statement

action verbs to be processed. Some examples are:

APPLY. To apply a source or load function to the UUT as defined by performing the single action functions: SETUP, CONNECT, CLOSE.

MEASURE. To measure a UUT signal by the use of a sensor function and to retain the value by performing the single action functions: OPEN, DISCONNECT, SETUP, CONNECT, CLOSE, READ.

VERIFY. To measure a UUT signal by the use of a sensor function, retain the value, and compare the measured value against limits established by the test specification writer by performing the following single action functions: OPEN, DISCONNECT, SETUP, CONNECT, CLOSE, READ, COMPARE.

TEST SIGNALS

Test signals can be pneumatic, mechanical, or electrical signals applied to the UUT or measured as an output of the UUT. These test signals are called "nouns" in the ATLAS language. Some examples are: AC SIGNAL, DC SIGNAL, DIGITAL TEST, DISPLACEMENT, HEAT, IMPEDANCE, RANDOM NOISE, WAVE FORM.

To describe the test signal more completely, ATLAS uses noun modifiers in conjunction with the nouns in each ATLAS statement. Some noun modifiers are: AMPL-MOD (Amplitude Modulation), BIT-RATE, CURRENT, FREQ (Frequency), MAG (Magnitude), RES (Resistance), TEMP (Temperature), VOLTAGE.

ATLAS also has provisions for including statement characteristics that further define values and dimensions of the nouns and noun modifiers. Statement characteristics include: ERRLMT (Error Limit), LL (Lower Limit), MAX (Maximum), MIN (Minimum), RANGE, UL (Upper Limit).

000010 BEGIN, ATLAS PROGRAM $

Preamble Section

Procedural Section

001280 TERMINATE, ATLAS PROGRAM $

Figure 2

A Simple ATLAS Program

RULES

A set of rules found in "The Institute of Electrical and Electronics Engineers, Inc. Standard 416-1976" governs the use of the various elements of the ATLAS language. The rules dictate, among other things, that an ATLAS statement is composed of the following major components (fig 1):

STATEMENT. An optional statement number is used to identify the statement in case it has been referenced somewhere else in the test program. When sequentially numbered, the computer keeps the statements in proper execution order.

VERB. A test action.

NOUN. A test signal name.

NOUN MODIFIER. A test signal characteristic that is applied or measured.

STATEMENT CHARACTERISTIC. A collection of one or more test signal characteristic names where each noun modifier is followed by a value and dimension. An example is VOLTAGE MAX 12V.

CONNECTION FIELD. The functions and names of the UUT posts or terminals at which the test action is being performed.

STATEMENT TERMINATOR. Each ATLAS statement ends with a statement terminator designated by the currency symbol ($).

Additionally, there are rules that govern the program structure of an ATLAS program. A simple program would consist of two parts (fig 2), a Preamble Section and a Procedural Section. The Preamble Section (fig 3) is used to define variables, designate the amount of storage locations required, label power supplies, and measure loads. The Preamble is also used to establish procedures (fig 4) that may be used frequently throughout the program. The Procedural Section (fig 3) is where the ATLAS statements are written that execute the test. These statements cause the test system to perform the test actions.

Preamble Section	Procedural Section
Contains ATLAS statements which are used to define and label variables, power supplies, loads, measuring devices and procedures. These statements do not cause tests to be executed.	Each ATLAS statement causes a specific test action to be executed. It is the main body of the ATLAS program.

Figure 3

The Difference and Purpose of the Preamble & Procedural Sections

```
    000010 BEGIN, ATLAS PROGRAM  $

C                    PREAMBLE SECTION
    000020 DEFINE, 'PWR-ON', PROCEDURE  $
    000030 APPLY, AC SIGNAL, VOLTAGE 115V ERRLMT +-1 PC, CNX HI J1-1 LO J1-2  $
    000040 APPLY, DC SIGNAL, VOLTAGE 6V ERRLMT +-PC, CNX HI J1-5 LO J1-6  $
    000050 END, 'PWR-ON'  $

C                    PROCEDURAL SECTION
    001000  PERFORM, 'PWR-ON'  $
    001010  ........................ $
    001020  ........................ $
    001030  PERFORM, 'PWR-ON'  $
    001040  ........................ $
    001050  REMOVE, 'PWR-ON'  $
    001060  TERMINATE, ATLAS PROGRAM  $
```

Figure 4

ATLAS Program Containing a Frequently Used Procedure

INPUT/OUTPUT FUNCTIONS

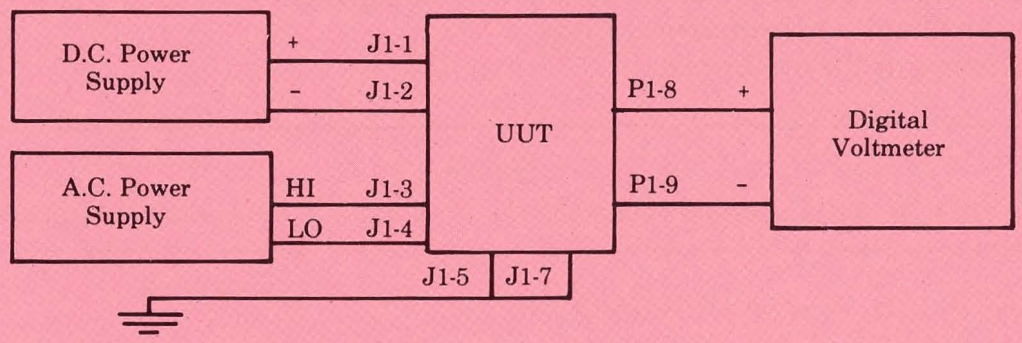
In almost every test there is a need for the test operator to communicate with the equipment. The purpose is to provide the part number or serial number of the UUT or to get answers from the ATE as to the serviceability of the UUT. Some of the input/output functions provided by ATLAS are:

DISPLAY. Presents a programer-generated message to the test operator on a visual device, such as a cathode-ray tube, numerical display, or indicator light panel. The message can be test results, computed values, or operator instructions.

FILL. Loads data into variables that have been defined in the ATLAS preamble section. These data may establish initial conditions for the test or could be the expected output parameters for the UUT.

INDICATE. Presents a programer-generated message to the test operator over whatever medium is available in the ATE. It could be visual, hard copy, or recorded.

This UUT has a 12-volt dc input and a 110-volt ac input. If ground is not applied to either of pins J1-5 or J1-7, the output of the UUT is 6 volts dc plus or minus 0.1 volts. If the output is not within this limit we need to tell the operator that Integrated Circuit Package (ICP) A-1 is bad. Then a ground is applied to pin J1-5. The output should be 12 volts dc plus or minus 0.1 volts. If the output is not correct ICP A-3 is bad, and we need to tell the operator this. If the UUT is good up to this point, we can then apply a ground to pin J1-7 also, the UUT output should then be 24 volts dc plus or minus 0.2 volts. If the output is not within tolerance, we need to tell the operator that ICP A-7 is bad. However, when all output voltages are correct, we must tell the operator that the UUT has passed all tests.




```
000010  BEGIN, ATLAS PROGRAM $
000020  APPLY, DC SIGNAL, VOLTAGE MAX 12V ERRLMT +-2 PC, CNX HI J1-1 LO
J1-2 $
000030  APPLY, AC SIGNAL, VOLTAGE MAX 110V ERRLMT +-5 PC, CNX HI J1-3 LO
J1-4 $
000040  VERIFY, (VOLTAGE), DC SIGNAL, UL 6.1V LL 5.9V, CNX HI P1-8 LO P1-9 $
000050  GO TO STEP 000220 IF NOGO $
000060  APPLY, EARTH, CNX J1-5 $
000070  VERIFY, (VOLTAGE), DC SIGNAL, UL 12.1V LL 11.9V, CNX HI P1-8 LO P1-9 $
000080  GO TO STEP 000240 IF NOGO $
000090  APPLY, EARTH, CNX J1-7 $
000100  VERIFY, (VOLTAGE), DC SIGNAL, UL 24.2V LL 23.8V, CNX HI P1-8 LO P1-9 $
000110  GO TO STEP 000260 IF NOGO $
000200  DISPLAY, MESSAGE, 'UUT GOOD' $
000210  GO TO 000300 $
000220  DISPLAY, MESSAGE, 'ICP A-1 BAD ON UUT' $
000230  GO TO 000300 $
000240  DISPLAY, MESSAGE, 'ICP A-3 BAD ON UUT' $
000250  GO TO 000300 $
000260  DISPLAY, MESSAGE, 'ICP A-7 BAD ON UUT' $
000300  TERMINATE, ATLAS PROGRAM $
```

Figure 5

The Translation from a Test Requirement to an ATLAS Program

PRINT. Presents a programer-generated message to the operator on a hard-copy device.

RECORD. Presents a programer-generated message to the operator on a recording device, such as magnetic tape.

WAIT FOR. Allows the test operator to enter manual data at that point in the ATLAS program.

DATA PROCESSING FUNCTIONS

ATLAS provides the capability to make calculations and comparisons similar to most data processing equipment. This feature allows automatic testing to continue if the UUT output is within tolerance limits. A few of the more useful ATLAS data processing functions are:

CALCULATE. Performs traditional arithmetic, boolean, bit shifting, and digital calculations.

COMPARE. A special test-oriented calculation that compares a value against upper and lower limits and provides a GO NO GO indicator or, if NO GO, an additional HI or LO indicator. This feature is useful when the result of a measurement needs to be compared against a set of limits to determine whether a test has passed or failed.

SAVE. A special verb to save the current measured value, identified always in ATLAS as being stored in the variable MEASUREMENT.

SOME ATLAS APPLICATIONS

Let's look at some simple uses for ATLAS. You are to apply a 15v dc to pin P1-1 of an amplifier and a ground to pin P1-3. In English our instruction in a technical manual might read:

1. Adjust dc power supply output to 15 volts, ± 10 percent.
2. Connect one end of the red lead to pin P1-1 of the amplifier and the other end to + output jack of the power supply.
3. Connect one end of the black lead to P1-3 of the amplifier and the other end to the ground jack of the power supply.
4. Move the output power switch on the dc power supply to the "ON" position.

Using single action ATLAS verbs, the procedural section of the program would read:

000010 SETUP, DC SIGNAL, VOLTAGE MAX 15V ERRLMT ± 10 PC $

000020 CONNECT, DC SIGNAL, VOLTAGE MAX 15V ERRLMT ± 10 PC, CNX HI P1-1 LO P1-3 $

000030 CLOSE, DC SIGNAL, VOLTAGE MAX 15V ERRLMT ± 10 PC, CNX HI P1-1 LO P1-3 $

Using a multiple action ATLAS verb, the procedural section of the program would read:

000010 APPLY, DC SIGNAL, VOLTAGE MAX 15V ERRLMT ± 10 PC, CNX HI P1-1 LO P1-3 $

Examine the last ATLAS statement for a moment. Did you recognize the various elements of an ATLAS statement? The statement number is 000010; the verb is APPLY; the noun is DC SIGNAL; the noun modifier, VOLTAGE; the statement characteristics is MAX 15V ERRLMT ± 10 PC; the connection field, CNX HI P1-1 LO P1-3; and the $ is the statement terminator. Notice also that by using a multiple action verb the procedure was simplified.

Figure 5 shows how an individual chassis is tested and a method of indicating which part is unserviceable if the unit under test fails any particular part of the test. This same method of fault indication can also be applied to functional groups of a chassis like a transmitter section or an entire radar or missile system. The error indication might be "Replace Amplifier A-23" or "Adjust 28-Volt Power Supply."

System software can provide automatic switching into maintenance and diagnostic procedures similar to the ATLAS procedures shown here, with the fault isolated and a corrective action message sent to the operator almost before he realizes that his system is not operating properly. This will be an important factor in maintaining operational equipment.

THE BOTTOM LINE

ATLAS is the tool that can link more closely the weapon system designer, test equipment designer, maintenance man, operator, and the commander into the proper man-machine interface that can make our complex weapon systems more effective in performing the mission. And after all, isn't a high percentage of "green time" what we're striving for?

CW3 Harris holds a Bachelor of Science Degree in Engineering from the University of Nebraska at Omaha and is a Distinguished Graduate of the Warrant Officers Senior Course. Besides serving 4 years overseas in Nike Hercules direct support units and 6 years in Safeguard R&D, he taught Computer Appliances in Systems Engineering and Computer Simulations Modeling at the University of Nebraska at Omaha. He retired from the Army in February and will be employed by Ford Aeronutronics as Software Engineer in the DIVAD Gun program.

the HIND MYTHS & FACTS

Captain Carl E. Daschke

Threat Branch
Directorate of Combat Developments
Fort Rucker, AL

THE THREAT

This article was originally published in the US Army Aviation Digest *and the author garnered the Digest's Monthly Writing Award for his effort. It contains information of genuine value to the air-defenseman.*

Of the tactical combat equipment items fielded by the Soviet military recently, few have created as much interest, discussion — *and led to as many misconceptions* within the Army's aviation community as has the Mi-24 HIND assault helicopter.

Discussions concerning the HIND invariably surface misconceptions concerning its size, possible missions and flight capabilities. Many of the misunderstandings are the result of attempts to compare Soviet with US concepts of rotary wing aviation in terms of missions, armament, and tactics.

Common examples of misconceptions concerning the HIND-A and its product improved follow-on, the HIND-D, are:

☐ The HIND, because of its size, is incapable of hovering or firing its weapons from a hover.

☐ The HIND is huge when compared to US aircraft. It's often compared, in size, with an armed CH-47 Chinook.

☐ Soviet rotary wing technology is incapable of producing a rotary wing aircraft stable enough to allow it to engage in nap-of-the-earth flight modes.

☐ Soviet rotary wing technology is extremely rudimentary and tends to be far behind US technology in terms of armaments and avionics.

The truth of the matter is that the Soviets have the capability to produce and field a modern, highly technical, and advanced assault helicopter. The deployment of the HIND, which exhibits many of the advanced capabilities of the US advanced attack helicopter (AAH), preceded the US AAH production and employment by several years. Consequently, the ability of Soviet technology to produce a helicopter with capabilities equal to (and in some instances exceeding) corresponding US systems and capabilities signaled the closure of another weapons technology gap.

Since the HIND's introduction, four versions have been identified. Initially, the HIND-B prototype was produced, followed by the HIND-A. The HIND-A was selected for production and subsequent deployment to the tactical forces. A follow-on version of the HIND-A, but without armament (HIND-C), was produced to be used as a training aircraft.

During the spring of 1977 the HIND-D, a product improved variant of the HIND-A, was identified with the forward forces. The deployment of the HIND-D follows the evolutionary development of HIND series aircraft with additional emphasis being placed on armament and fire control. The HIND-D is expected to possess a greater offensive capacity by

incorporating more sophisticated fire control, target acquisition and improved weapon systems. The HIND-D is considered by some observers to be the most versatile and advanced helicopter in service anywhere in the world.

In an effort to clarify some of the myths surrounding the HIND, and more accurately evaluate its offensive potential, it is necessary to recognize the most significant difference between the HIND and its present US counterpart, the AH-1S Cobra. The HIND was developed as an offensive weapon with the ability to operate and survive ahead of the attacking forces to which it is attached. The aircraft's onboard weapons, coupled with its ability to carry an additional basic load of ammunition or eight combat troops, tend to support the HIND's potential for independent combat operations. The armament package developed for the HIND allows the aircraft to employ a variety of different weapons in support of its actions:

- ☐ 128 57-millimeter (mm) free flight aerial rockets (FFARs).
- ☐ 4 antitank guided missiles (ATGMs).
- ☐ 12.7-mm Gatling gun.

The weapons package, cargo hauling, and flight characteristics allow the HIND to be extremely versatile and could be expected to perform many more types of missions than comparable US helicopters. It is believed, however, that the HIND will be predominantly employed in the combat roles discussed below.

Close Air Fire Support: The variety of weapons found on the HIND allows it to provide close air fire support for the attacking forces. The lack of dedicated close air support (CAS) from high-performance aircraft has long been a point of concern among attacking ground force commanders. The HIND could be called upon easily to fill the CAS gap by attacking an enemy force with its rockets, bombs, and Gatling gun fire. The ability of the aircraft to loiter in the vicinity of the battle area until sufficient numbers of targets become available further increases the HIND's CAS threat to our defending forces.

Combat Air Assault: In the early stages of a conflict the primary mission of the HIND could easily center around its ability to transport forces and then remain with those forces to provide close air support. Combat air assault (CAA) missions will be conducted in an effort to insert forces within our rear areas. These forces would have the mission of disrupting our communications, logistics, and command and control facilities. Particular emphasis would be placed on those logistical areas where our special weapons are maintained. In addition, CAA could be used to facilitate the securing of river crossing areas to be used by the attackers, and fortified positions. In the performance of CAA missions, we can reasonably expect the HIND to be employed with

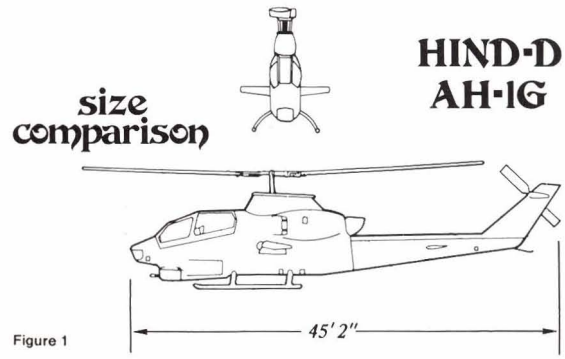


Figure 1

the Mi-8 HIP E and F which have a larger troop lift capability. The HIND's ability to carry a full complement of weapons, with an additional basic load of ammunition inside the cargo area, will prove to be invaluable in supporting the combat air assault role.

Antitank Fires: The HIND is capable of employing its ATGMs (AT-2 SWATTER or advanced systems) much in the same manner as our antitank aircraft. Considering the range limitations associated with the AT-2 SWATTER, the aircraft would probably realize its greatest antitank success by engaging armor from a defensive position. However, the offensive potential, especially against our tanks acquired while they are repositioning between defensive battle positions, cannot be discounted or overlooked.

Air-to-Air Interdiction: The possibility of our helicopters being engaged by the HIND is a subject of increasing concern and debate within the aviation community. This concern is undoubtedly justified, with the postulated air-to-air mission based upon several undeniable factors.

The HIND is equipped with weapons which originally were developed for air-to-air use, or are capable of being employed in an air-to-air role. Most notable are the 57-mm FFAR and the 12.7-mm Gatling gun.

The HIND, if employed in the missions we project for it, will spend a great deal of its time operating behind our forward edge of the battle area. It would then be reasonable to conclude that our most timely response to these intrusions would be our own attack helicopter; therefore the HIND appears to be armed to counter our perceived aviation threat to the accomplishment of the HIND's mission.

Assuming that our antitank aircraft are at least as successful in killing Soviet tanks as we hope them to be, it is not unrealistic to believe that the Soviets

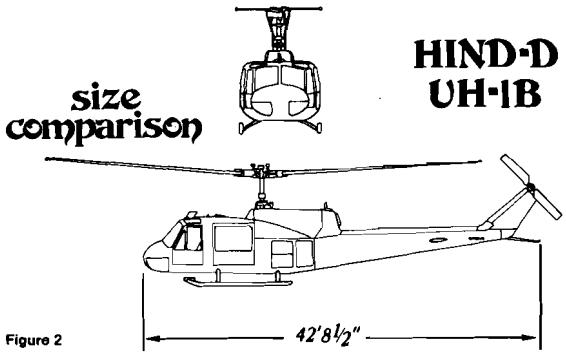


Figure 2

would consider the HIND as a viable weapon to be employed against our antitank aircraft. As stated earlier, the HIND-D incorporates sophisticated navigational, target acquisition/fire control and weapon systems. The advanced technology associated with the HIND is made possible by the use of a "continuing technology" process employed in the manufacture and design of each succeeding version of the HIND. Another practice, allowing the designer to provide equipment which is more sophisticated than what we generally would include on our helicopters, is the use of common aircraft systems. This commonality stresses the use of standardized parts, assemblies, and subsystems throughout aircraft production when and wherever possible.

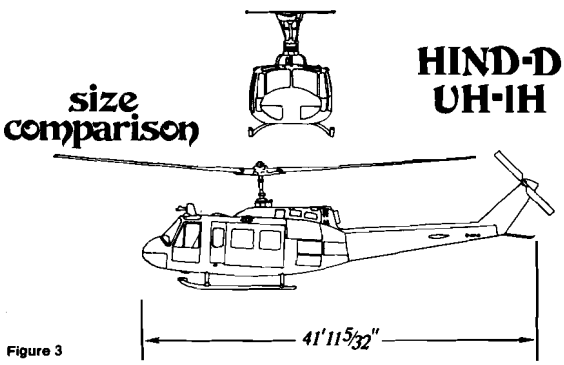


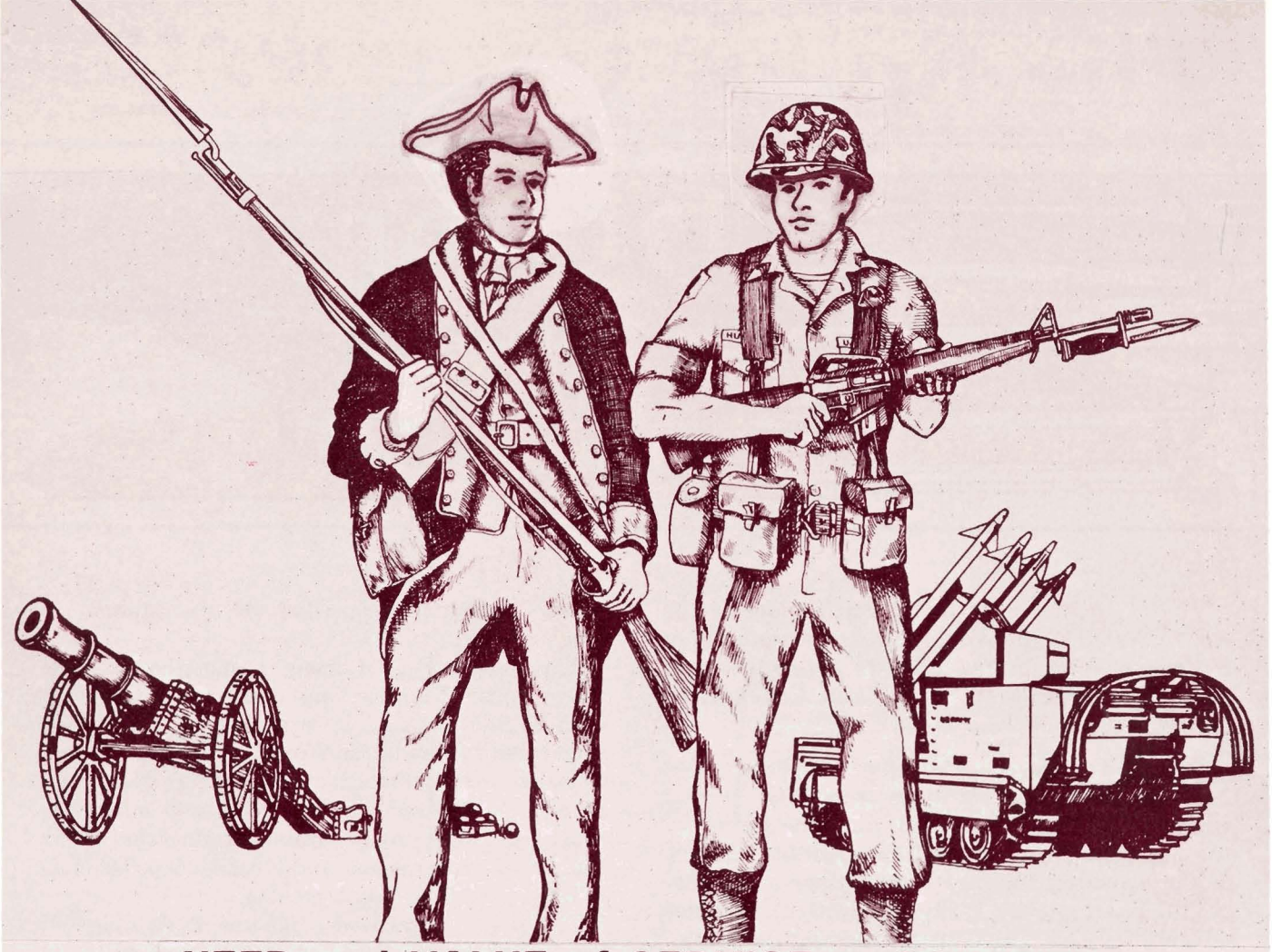
Figure 3

Therefore, it is possible to find several types of aircraft equipped with similar avionics, navigational devices and armament. The reason behind the use of common items is that the design bureaus for armaments and avionics are responsible for developing all related systems for the Soviet aircraft fleet. Under this concept it is far less complicated and less expensive to design one type of subsystem which can be used on several aircraft; thus, the navigational systems, bomb racks or rocket pods tend to be standard throughout the Soviet Air Force.

Much has been said concerning the size of the HIND in comparison to our fielded helicopters. Obviously the HIND is larger than its US counterpart. A smaller version of the HIND would undoubtedly reduce the aircraft's versatility, and reduce the aircraft to a carbon copy of our antitank helicopter. Although larger than US antitank helicopters, it is not as large and cumbersome as some "experts" would have you believe. With the help of the illustrators at the Aviation Center at Fort Rucker, Alabama, we have prepared scaled comparisons of the HIND versus our AH-1G (fig. 1), UH-1B (fig. 2), and UH-1H (fig. 3) helicopters.

The illustration comparing the HIND with the AH-1G provides some distortion in that it compares the aircraft in a landed position. In flight the HIND's tricycle landing gear would be raised into the fuselage. Therefore, in flight, the height of the two aircraft would be similar, more closely resembling the Cobra's. Another important consideration when comparing the aircraft is that the HIND most probably will be observed from a frontal or at least quartering position, with the observer's vision being obscured by fog, haze, or smoke. The obscuration of the aircraft would make immediate positive identification more difficult. This fact will no doubt cause some real problems for our ground forces, especially in the air defense units attempting to identify aircraft.

The HIND's larger size will no doubt restrict it from operating in the very extremes of terrain flight. This will, however, be of minimal concern to the Soviet aviation officer. The HIND appears to have been provided with the technology, power, and armament to enable it to successfully complete its myriad of combat missions. I feel that, although the aircraft undoubtedly will have some vulnerabilities, the HIND can be expected to represent a rather significant threat to both Army tactical aviation and our ground forces. Based on the HIND's versatility, we can expect increasing numbers of HIND aircraft to be deployed in the forward areas.



NEED and VALUE of SERVICE to COUNTRY

n 14 June 1775, the Continental Congress established a Regular Army. During the more than 200 years since, millions of Americans have worn the Army uniform, suffered the hardships of nine major conflicts, trained ardously for the next trumpet's call, enjoyed the comraderie of Army life, and served their country well. Today, the Army is represented by more than three-fourths of a million soldiers stationed in more than 95 countries and territories throughout the world.

These soldiers dig foxholes, drive tanks, cook chow, load and unload trucks, operate computers, and perform a myriad of tasks necessary to keep units ready to fight. It is sometimes difficult for a tired, grubby infantryman who has just hiked 12 miles in full combat gear to realize his importance in a larger perspective of national defense. But the Army *is* people and the Army is only as good as the combined efforts of individuals who care about doing the best job possible and who are proud of being soldiers.

In addition to the Active Army, the Nation's defenders include more than 530,000 citizen soldiers who maintain and improve their military skills as members of the Army National Guard and Army Reserve. Training on weekends and at summer camps, these dedicated soldiers stand ready should the nation call.

Only a small portion of the American public shares this service to country. That number needs to be expanded through actual service or, at the least, by support of those in uniform. Military service is essential to America's strength. A force trained and prepared to defend the nation and its vital interests is imperative. Our Army is a major part of American society, with a key role in global relationships and diplomacy. The need for an Army as an instrument of public policy is undisputed. No country exists without an Army, and history is clear that a lack of a trained, dedicated Army has signaled doom for the existence of some nations.

The ranks of the US Army must be filled with soldiers imbued with a realization of the value of their service. We need men and women who relish the challenge and seek the rewards of military service, soldiers who stand tall and serve with pride as the Colors are presented, citizens who feel proud that they are sharing the obligations of freedom. We see such soldiers every day and are glad to be part of and represented by them.

The US fighter force in the Pacific, during the early days of World War II, consisted primarily of P-39s and P-40s. A few obsolete fighters were in service at the start of the war but were soon replaced by the newer P-39s and P-40s.

The P-39 proved unsatisfactory in combat because of its poor altitude capability. It was consistently outclimbed and outmaneuvered by the Japanese fighters, and the operating altitude of the Japanese bombers virtually prevented successful intercepts by P-39s even with 30 minutes advance warning. The P-39 was used with some success in the ground-attack role because of its heavy armament, rugged construction, and armor protection.

The P-40, like the P-39, could not match the rate of climb and maneuverability of the Japanese fighters. Even though it was second best in a dogfight, the P-40 was effective against enemy aircraft in a diving attack. Hit-and-run tactics were developed and attacks were made only with the advantage of altitude.

The P-38 (Lightning) became operational in the Pacific in October 1942. It soon earned the name of Angel. It was the first United States fighter capable of meeting the Japanese fighter on relatively even terms. Unlike the P-39 and P-40, the Lightning was in its element at 20,000-feet altitude. Its greater range was also an important factor in the subsequent "island-hopping" war in the Pacific. It could fly long ranges without refueling.

The Grumman F-6F Hellcat was placed in operation with the Pacific fleet in 1943. It was designed specifically to master the Japanese Zero. The Hellcat was superior to the Zero in every respect. It was faster, more maneuverable, more rugged, had a higher flying capability, and was better armed. The F-6F had a maximum speed of 375 mph at 17,300 feet and a maximum range of 1,590 miles. Armament consisted of six caliber .50 machineguns.

The Vought F-4U Corsair, a shore-based plane flown by the Marines, was superior in capability even to the Hellcat. It was placed in operation from bases in Guadalcanal in 1943. Late in the war, Corsairs were operated from carriers. Maximum speed was 417 mph at 19,900 feet and maximum range was 2,220 miles. Armament consisted of six caliber .50 machineguns, and it carried 2,000 pounds of bombs or eight 5-inch rockets.

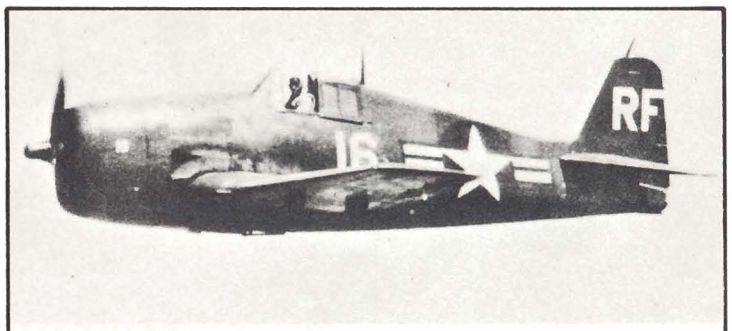
The P-47 Thunderbolt, like the P-38, operated best at altitudes exceeding 20,000 feet. With its heavy armament and excellent performance capability, it was more than a match for the Japanese aircraft. Range was a limiting factor of the earlier models of the Thunderbolt. To correct this limitation, the P-47N was produced expressly for the Pacific Theater. It had increased maneuverability, maximum speed of 460 mph at 30,000 feet, and a range of 2,350 miles. The N model gave excellent service, particularly in escorting B-29s from Saipan to Japan and on other long-range missions.

The P-51D Mustang had a maximum range of 2,080 miles, which made it ideally suited for bomber escort and fighter sweeps in the Pacific. In February 1945, Mustangs began escorting the B-29s in their assault on Japanese targets. The P-51 was the first land-based fighter to make strikes against Tokyo, starting in April 1945. It outperformed all Japanese fighter opposition.

United States Fighter Tactics and Techniques

As part of an attempt to strengthen our most western outpost, the Chief of the Army Air Corps, in October 1940, directed that 48 P-35s scheduled for shipment to Sweden be diverted to the Philippines. Late in November, the 17th and 20th Pursuit Squadrons arrived from the United States and took up their station at Nichols Field on the outskirts of Manila. The subsequent shipment of 31

P-40Bs from the United States necessitated the creation of a more modern air organization in the Philippines. The 4th Composite Group (consisting of Headquarters and Headquarters Squadron; 28th Bombardment Squadron; 2d Observation Squadron; the 3d, 17th, and 20th Pursuit Squadrons; 20th Air Base Group; and supporting units) was reorganized into the Philippine Department Air Force. This change proved to be only the first in a series of steps designed to bring about a more effective air force structure in the Philippines. The Philippine Department Air Force, on 4 August 1941, was given a more flexible organization and was redesignated Air Force, United States Army Forces in the Far East. This Air Force at that time was able to put into the air one squadron of P-40Bs, two squadrons of P-35As, one squadron of P-26As, and two squadrons of B-18s. But against even a mildly determined and ill-equipped foe, this show of air strength would have been sadly deficient. As a part of the overall plan for maintaining a strategic defense, the Army Air Force (AAF) now allocated to the Pacific additional heavy bombardment groups and two additional pursuit groups of 130 planes.



The F-6F Navy fighter, the Hellcat I.

In December 1941, the P-35s of the 34th Pursuit Squadron in the Philippines averaged 500 flying hours each. These aircraft lacked pilot armor and self-sealing fuel tanks and, though many gallant actions were fought by the P-35s, the last two fell to Japanese fighters in March 1942.

The American Volunteer Group (Flying Tigers), equipped with Tomahawks, the British version of the P-40B, enjoyed considerable success in spite of the fact that they contested enemy fighters superior in number and performance. This was mainly due to the tactics of making the most of the P-40's good points. Using a two-plane element in hit and run tactics, the pilots extracted the fullest advantage from the superior diving and level flight speed of the P-40B, while nullifying the enemy fighters' superiority in maneuverability and rate of climb by avoiding dogfights. Against the enemy bombers, they also used diving tactics, frequently coming out of the dive to strike the bomber from below. The ruggedness of the P-40 and its superior firepower, together with emphasis on accurate gunnery, constant reliance on the two-plane element, and valiant work of the ground crews, enabled the Flying Tigers to destroy an almost incredible number of the more fragile Japanese planes while suffering minimum losses.

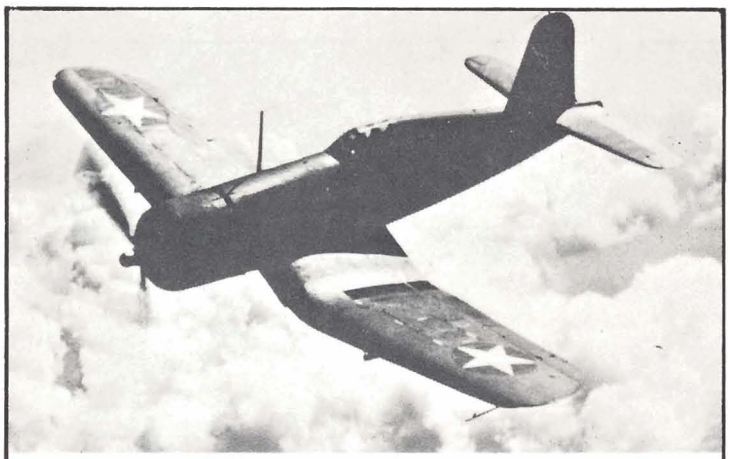
At this early date, the pattern of US Army Air Force tactics was already evolving, and the lead set by the Flying Tigers was closely followed by pursuit units sent to the Pacific battle area. The Flying Tigers received their first P-40E Warhawks by the end of April 1942. By June 1942, they were absorbed into the 23d Fighter Group of the US Fourteenth Army Air Froce. Their P-40Es ran up substantial scores of enemy aircraft destroyed. The six caliber .50 machineguns with 1,200 rounds per aircraft provided this plane with excellent firepower.

The chief complaint coming from various command headquarters concerned the inability of both the P-40 and the P-39 to climb quickly and operate at high altitudes. The Japanese soon appreciated this shortcoming and in the Southwest Pacific Area appeared over Port Moresby, New Guinea, and Darwin, Australia, at 22,000 feet to escape interception.

As noted, the P-39 was unable to meet the Japanese Zero on equal terms. Its strong points were its heavy armament with the 37-mm cannon, its extremely sound construction, its self-sealing fuel tanks, and pilot armor, all of which made it capable of withstanding a fair amount of punishment. But, poor acceleration and ceiling limitations were its chief drawbacks, and its maneuverability left much to be desired.

In addition to sending P-39Ds, the Army Air Force sent more than 100 P-400 Airacobras to the Southwest Pacific Area, ordered by the British but rejected after service test. These planes were externally similar to the P-39D but did not match it in performance. It became obvious that this aircraft was best suited for ground support roles where its 20-mm armament could be used to advantage.

The P-38 had the speed, range, and high-altitude performance that was much needed by the fighter groups. Persistent pleas resulted in approximately 60 P-38Fs reaching Australia for the Fifth Air Force's campaign in New Guinea. On 27 December 1942, 12 P-38s of the 39th Fighter Squadron made their first victory claim. They dived on a Japanese formation consisting of 7 bombers and more than 20 fighters and shot down 2 bombers and



The F-4U Navy fighter, the Corsair.

9 fighters with only 1 P-38 being damaged. Unlike the P-39 and P-40, the P-38 was efficient at 20,000 feet and, in fact, faced disadvantages when forced to operate at a lower altitude. The first P-38s in the South Pacific Area were assigned to the 339 Fighter Squadron in October 1942 and made the first successful night interception by shooting down an enemy bomber on 29 January 1943 over Guadalcanal.

In June 1943, the 348th Fighter Group, a P-47C unit originally scheduled for Europe, was sent to the Pacific where it became operational late in July 1943.

Some units in the Pacific, accustomed to the greater maneuverability of the P-40 series at low and medium altitudes, were at first disappointed with the P-47 Thunderbolt until they fully appreciated its virtues of stability, high altitude performance, increased speed, and firepower.

The first single-engine fighter to seriously challenge the Zero was the Chance Vought F-4U Corsair. Faster than the Zero in level flight and capable of greater diving speeds, the Corsair proved to be a potent threat to the Japanese fighters. As the number of Corsairs increased, the Zeros ran into serious trouble, and the Japanese were faced with serious losses inflicted by the speedy Navy fighter. The new Grumman F-6F Hellcat fighter made its debut during the Gilbert Islands Campaign in September 1943. This carrier-based fighter was to become one of the Zero's most formidable opponents.

The new Hellcat was superior to the Zero in every respect except in maneuverability and range. It was protected by self-sealing fuel tanks and armorplate, armed with six caliber .50 machineguns, and carried a much greater load of ammunition than any other US fighter.

The favorite maneuver of the Americans with the Hellcat was to assign a pair of fighters to attack a Zero in a steep dive during which high speed was attained. Once the Zero was within range, the Hellcat would open fire, roar past, and make a sharp turn to withdraw. The Hellcat was apparently designed and placed in mass production for Pacific use. More than 10,000 F-6F fighters were built before production ceased at the end of 1945.

A comparison between Japanese and US fighters engaged in the first 6 months of the war showed that the latter were of sounder construction, more heavily armed, could equal their opponents in level speed, and could out dive them. The Japanese fighters were of far lighter construction and susceptible to heavy firepower but were more agile and could quickly climb away. The United States tactics were basically those of the Flying Tigers; never to engage in dogfights and attack only when having the advantage of height.

If given sufficient warning to permit them to reach superior altitude, US fighters could achieve considerable success, as they did on 30 July 1942 over Darwin when 27 P-40s shot down 6 Zeros and 2 bombers at a cost of 1 P-40.

In mid-1942, the word Pursuit was officially dropped from unit titles in favor of the word "fighter." Pursuit groups and squadrons became fighter groups and squadrons.

The squadron was the basic unit of the Army Air Force but, in 1940, the yardstick for assessing Air Force strength had come to be the group, a more convenient formation that combined two to four squadrons under a single command. In the Pacific, where airstrips were often only capable of holding a single squadron, the squadron had a far more independent role. In both the Pacific and Europe, the "finger four" flight formation was adopted as the standard tactical flying formation, and four such flights made up a squadron formation. The usual number of squadrons in a group was three, but occasionally a fourth would be attached. In group formations, each squadron flew at different altitudes for mutual protection. The number of aircraft assigned to a squadron varied throughout the war. Originally, when fighters were in short supply, 18 was the number assigned. By late 1942, squadrons were receiving 25, and during the next 2 years this was raised to 40 in many cases. By 1945, the maximum permissible number of combat aircraft in a squadron was 42.

Night-fighter squadrons were not organized into groups and operated independently under the command of Wing. Twelve aircraft was the usual strength of early night-fighter units but, by 1944, the official strength was 18 including reserves.

Thomas B. Whiting
Chief, Individual Learning Center

Located at the US Army Air Defense School is a dedicated, professional, audiovisual service that can provide you with special training assistance while you are stationed at Fort Bliss. It is the USAADS Individual Learning Center (ILC), which provides a valuable training service that air defense artillerymen should be aware of and take advantage of.

The ILC opened in July 1974 with a recorded utilization that month of 7 Army Reserve officers, totaling 17.5 program man-hours. Today, the ILC averages 2,000 patrons a month with approximately 4,000 program man-hours. The ILC is under the supervision of the Resident Training Management Division of the Directorate of Training (DOT). The ILC provides multimedia support for all the courses presented by the Faculty Development Division of the DOT and an opportunity for anyone to come in and help himself.

A wide variety of subjects is offered. Along with the MOS training lessons, commercially prepared programs are available, using the most modern TV video tapes. Our learning programs include subjects ranging from electronics to speed reading, and even the art of fishing. We have programs that entitle the patron, upon satisfactory completion, to receive a Certificate of Training, and one electronics course that can lead to college credits. On order is an extensive video tape program on American History. The patron may use these programs at his own pace. When using the ILC, you can't help taking some knowledge away with you, and the price is right too — FREE.

The ILC has the largest consolidation of Training Extension Course (TEC) materials, together with related equipment, at Fort Bliss. This TEC information is an extensive series of validated teaching kits produced by the Army. The kits include the media software (audio cassette and/or super 8-mm, loop cartridge) and a student instruction sheet stating training objectives, materials required, time references, general instructions, and any prerequisite lessons. The kit's software is used with a Besseler Cue/See projector. TEC is presented in audiovisual or audio and in some cases printed text. All of these are accompanied by Lesson Administration Instructions, which can be used as references when setting up courses of instruction or by a class using the TEC materials.

The ILC presently consists of three rooms. The TEC Carrel Room is used primarily for the Training Extension Courses. The Video Carrel Room is used primarily to view the prerecorded video cassettes. Our third room is a multimedia theater to accomodate large groups or classes using TEC lessons or video cassettes. All facilities serve a functional purpose and enhance the total learning environment.

The TEC Carrel Room has 26 multimedia learning carrels. A carrel has everything needed to view TEC and slide/tape programs from a rear projector unit. The slide tape programs are on military topics, current affairs, and psychology. This room also contains five foreign language courses, which are on audio cassettes.

The Video Carrel Room has 22 learning carrels, 20 of which are equipped with ¾-inch video cassette players and 12-inch color monitors. Two carrels are identical to those found in the TEC Carrel Room and are used for overflow and nighttime patrons. In this room we have lessons on video tape that cover business law, economics, electronics, world history, education, speed reading, and the list goes on and on. USAADS Pamphlet 350-3, Catalog of Instructional Programs, describes the available programs, how to use the current catalog coding system, and how to reserve the multimedia theater.

The theater seats 50 students but can be made to accommodate up to 100. There is a portable chalk board for conventional classes, a video tape player with two large, color monitors, a 16-mm motion picture projector, a cassette tape player, a Besseler Cue/See, and an overhead projector.

Normal operating hours of the ILC are from 0730 until 2030 Monday through Friday. Upon special request, facilities may be made available on Saturdays and Sundays.

We constantly review and evaluate ILC material to update, replace, and add to keep holdings current. New additions to the ILC collection are posted in the master catalogs located in the Video and TEC Carrel Rooms. Faculty and students provide feedback to the ILC staff that is taken into consideration for future acquisitions. To keep people coming back and using our facilties, we must be attuned to their needs. If a topic or subject area is requested frequently that we do not have, the staff will request that we procure it. We can't afford to fill every request but, if funds are available, we'll try. Also, to help establish baselines for future programs, equipment, and any changes in our hours of operation, we keep attendance records.

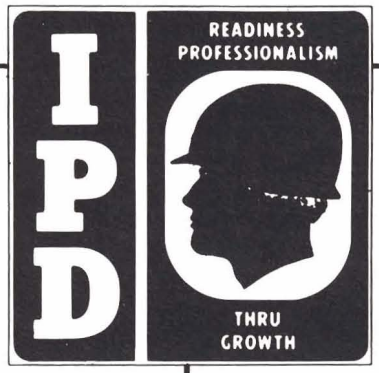
We feel the ILC has a lot to offer. Programs are beneficial to your education, Army career, and your future. Nobody is required to use our facility, but those self-motivated, dynamic, and progressive people are the ones we see taking advantage of the ILC.

We are proud of the facilities and on occasion we get to show them off to visitors such as educators that come to Fort Bliss for recruitment purposes. We are a major factor in the accreditation of USAADS with the Southern Association of Colleges and Schools, which is another point of pride we feel about the ILC.

On behalf of my staff, I invite you to visit the US Army Air Defense School's Individual Learning Center, Room 186E, Building 2, Fort Bliss, Texas, or call 978-3611/4680 for further information. We still have room for more patrons. Our job is to serve you.

ARMY CORRESPONDENCE COURSE PROGRAM

ASP — SQT



ARTEP

Edward P. Shepherd

What greater challenge faces training managers at all levels than meeting the training needs of every soldier in every unit throughout the Army? None! To help the soldier and the training manager, the Army Correspondence Course Program may be the answer to meeting those training needs.

Historically, the Army has done a good job of teaching the skills that soldiers need. However, training managers must make the best use of time, money, and equipment to teach these skills. It is true that many skills should be taught in resident programs, but resident training is expensive, time consuming and, in most cases, does not provide an opportunity for early completion for soldiers who are already proficient in some of the skills being taught.

The training needs of every soldier are as unique as his fingerprints. Like a detective identifying a fingerprint, each soldier should try to determine what could be called his "training print." The "training print" will show the current status of all his required skills, those already mastered and those that are not. When an accurate "training print" is available, the selection of the most efficient training option to gain skills needed for job performance often leads a soldier or his training manager to the Army Correspondence Course Program.

Currently, almost one out of every seven soldiers on active duty is enrolled in Army correspondence courses. The main reason for this enrollment is simple — the program works. The correspondence course program of the US Army Air Defense School currently offers more than 200 separate subcourses as part of more than 60 correspondence courses. These courses have been developed by the Air Defense School and cover the full range of skills required of all air defense soldiers. Completing one or more courses can result in significant benefits to the individual soldier and to his unit. These courses and all air defense-related subcourses are listed in DA Pamphlet 351-20-1, the US Army Air Defense School Correspondence Course Catalog. The entire 351-20 pamphlet series lists correspondence courses for all Training and Doctrine Command (TRADOC) schools and is available in each battery Army wide. The actual course and subcourse materials are distributed by the Army Institute for Professional Development at the US Army Training Support Center.

Soldiers enrolled in correspondence courses are provided with all of the materials and references they need to complete their programs. These materials, which are provided at no cost to the student and are his to keep, can be invaluable resources for future on-the-job use.

Another benefit of increasing job knowledge through correspondence course completion is the greater chance of success on skill qualification tests (SQTs). Soldiers can use their SQT notice and the DA Pam 351-20 series to select subcourses to learn those skills that will be tested. As each soldier in a unit becomes more proficient in his job, unit per-

formance on field training exercises and Army training and evaluation programs (ARTEPs) should improve also.

In addition to these benefits, correspondence course completion earns promotion points for active duty personnel and retirement points for reservists. The ratio of credit hours to promotion points is one point for each 5 credit hours of completed correspondence work. Service members are awarded promotion points for any military correspondence course or subcourse completed successfully. Equal promotion points are awarded for work completed in a soldier's PMOS, DMOS, SMOS, or nonrelated MOS. Reservists earn one retirement point for every 3 credit hours they complete.

Soldiers have several options for completing correspondence courses. They can enroll as an individual or as part of a study group and can, for some subcourses, complete the work through supervised on-the-job training (SOJT). The subcourses that are in an SOJT format are identified in the Army Correspondence Course Catalog series.

Individual enrollment allows each soldier maximum flexibility in determining all aspects of a training program. It also permits each student to attain the subcourse objective. This is a distinct advantage over resident programs.

Group enrollment allows several soldiers to study together under the direction of a group leader. The group leader may be a squad or platoon leader, a section sergeant, or the senior member of the group. This type of enrollment aids supervisors by providing current service school-produced materials on job-related skills that can be used easily in unit training.

For example, a group of soldiers could enroll in the Short-Range ADA Missile Crewman, MOS 16P, Correspondence Course by having the group leader:

☐ Complete a DA Form 145 (Army Correspondence Course Enrollment Application) for himself.

☐ Complete a roster with the name, rank, social security number, and unit of each of the other group members (include retirement year ending date for Reservists).

☐ Submit the enrollment application with the list of names to the unit commander for approval and mailing.

With the exception of the roster, this is also the application procedure for individuals. Enrollment applications for courses or subcourses offered by the Air Defense School should be forwarded to the Army Institute for Professional Development (IPD), US Army Training Support Center, Newport News, VA 23628. Each group member will receive all course material through the group leader.

The IPD was formed as a result of consolidating the administration of correspondence courses of 16 TRADOC schools at the Training Support Center. Three more schools have been added or will be added in the near future. Providing personalized services is one of the functions that IPD performs for all students enrolled in courses or subcourses offered by these schools. When students enroll in any course or subcourse, they are given the name and AUTOVON number of their own counselor within a student services team. In addition, if students or soldiers seeking information cannot reach the IPD during normal duty hours (0800-1645), they can record a message on a code-a-phone (AUTOVON 927-3085), which is operational 24 hours a day. The IPD also performs a curriculum review function intended to maintain up-to-date uniform material for all Army correspondence courses.

Since the consolidation, the institute has become accredited by the National Home Study Council (NHSC), which places a civilian stamp of approval on the Army Correspondence Course Program. Accreditation makes it more likely that civilian trade schools, colleges, and universities will grant credit for completed correspondence work. The NHSC accreditation, however, did not result in specific recommended credit evaluations for each course. IPD is currently working with the American Council on Education (ACE) in evaluating each correspondence course to determine recommended credit. The ACE evaluation will take approximately 15 months to complete.

If you are interested in filling the gaps in your "training print," improving your SQT score or just gaining additional knowledge about your job, take a closer look at the Army Correspondence Course Program.

Training managers will also be interested in knowing that a 10-minute, ¾-inch video cassette titled, "The Army Institute for Professional Development/Army Correspondence Course Program," (905-777-0828-B) is currently available through local audiovisual support centers. The tape is ideally suited for command information briefings.

DA PAM 351-20-1
(AIR DEFENSE COURSES)

Correspondence Course	Credit Hrs
ADA Officer Basic	176-230
ADA Officer Advanced	346
ADA Officer Familiarization	93-147
ADA Senior Sergeant MOS 16Z	193
ADA Advanced NCO (ANCOC) E-42	210-248
Primary Technical Courses	
JTP for Hawk Missile Crewman MOS 16D20	35
JTP for Hawk Fire Control Crewman MOS 16E20	35

JTP for Short-Range ADA Missile Crewman MOS 16P20 69
JTP for Short-Range ADA Crewman MOS 16R20 54

Basic Technical Courses
JTP for Hawk Missile Crewman MOS 16D30 64
JTP for Hawk FC Crewman MOS 16E30 84
JTP for Short-Range Missile Crewman MOS 16P30 104
JTP for Short-Range Crewman MOS 16R30 81

Merger Training
Hercules Missile Crewman Merger MOS Training (16B) 38
Hercules Fire Control Crewman Merger MOS Training (16C) 39
Hawk Missile Crewman Merger MOS Training (16D) 29
Hawk Fire Control Crewman Merger MOS Training (16E) 16
Operations/Intelligence Assistant Merger MOS Training (16H) 54
Defense Acquisition Radar Crewman Merger MOS Training (16J) 34
Chaparral Weapon System Crewman Merger MOS Training (16P) 23
Short-Range ADA Crewman Merger MOS Training (16R) 41
Hercules Missile Crewman MOS 16B
Common Subjects Skill Level 1 46
Hercules Missile Subjects 39
Skill Level 2 27
Skill Level 3 62
Skill Level 4 58
Hercules Fire Control Crewman MOS 16C
Common Subjects Skill Level 1 47
Fire Control Subjects (all skill levels) 38
Skill Level 2 27
Skill Level 3 54
Hawk Missile Crewman MOS 16D
Common Subjects Skill Level 1 46
Hawk Subjects (all skill levels) 20
Skill Level 2 27
Skill Level 3 57
Skill Level 4 71
Hawk Fire Control Crewman MOS 16E
Common Subjects Skill Level 1 46
Hawk Fire Control Subjects (all skill levels) 65
Skill Level 2 27
Skill Level 3 61
Light ADA Crewman MOS 16F
Common Subjects Skill Level 1 62
Light ADA (all skill levels) 34
Skill Level 2 28
Skill Level 3 68
Skill Level 4 35
Operations/Intelligence Assistant MOS 16H
Common Subjects Skill Level 1 46
Ops/Intel (all skill levels) 65
Skill Level 2 31
Skill Level 3 81
Skill Level 4 57
Defense Acquisition Radar Crewman MOS 16J
Common Subjects Skill Level 1 46
Acquisition Radar (all skill levels) 32
Forward Area Alerting Radar Crewman (all skill levels) 46
Skill Level 2 55
Skill Level 3 60
Short-Range ADA Missile Crewman MOS 16P
Common Subjects Skill Level 1 46
Chaparral Weapon System (all skill levels) 48
Skill Level 2 27
Skill Level 3 59
Short-Range ADA Crewman MOS 16R
Common Subjects Skill Level 1 46
Vulcan System Subjects (all skill levels) 28
Skill Level 2 27
Skill Level 3 56
Skill Level 4 87
ADA Mechanics MOS 24C, 24E, 24G, 24M, 24N
Common Subjects Skill Level 1 56
Common Subjects Skill Level 2 27
Common Subjects Skill Level 3 67
Common Subjects Skill Level 4 26
Hawk Firing Section Mechanic MOS 24C 12
Hawk Firing Section Mechanic MOS 24E 18
Hawk Information Coordination Central Mechanic (MOS 24G) 15
Vulcan System Mechanic 24M 53
Chaparral Weapon System Mechanic MOS 24N 35
IHawk Firing Section Mechanic (24C) FITES 51
IHawk Fire Control Mechanic (24E) FITES 11
IHawk Information and Coordination Control Mechanic (24G) FITES 36
Special Combat Arms Training Program 11
ADA Officer Refresher 65-74
Chaparral/Vulcan System Orientation 78
Redeye Missile System Controller 36-37
Redeye Gunner 17
Basic Electronics 130
Preparatory Course for ADA Officer Basic 2-44-C20 37
Special 16P10 Test (supervisor participation is required) 94
Operations Sergeant Course 53
Operations Assistant/Specialist Course 44
Intelligence Sergeant Course 35
Intelligence Assistant/Special Course 48

Mr. Shepherd is an education specialist at the Army Institute for Professional Development, US Army Training Support Command, Fort Eustis, Virginia.

THE CIVILIAN CADRE NATIONAL GUARD TECHNICIANS

Captain Joe T. Montoya

The Army, National Guard and Air National Guard employ full-time technicians who make up a civilian cadre. The National Guard Technician Program was created through enactment of Public Law 90-486, which is titled, The National Guard Technician Act of 1968. This act specifies conditions that must be met for employment. Technicians are Federal Civil Service employees with definite characteristics that are unlike those of other Federal agencies.

Nonsupervisor technicians of both the Army and Air National Guard are represented by the National Federation of Federal Employees Union. Management and Union officials normally renegotiate the Management/Union agreement every 3 years.

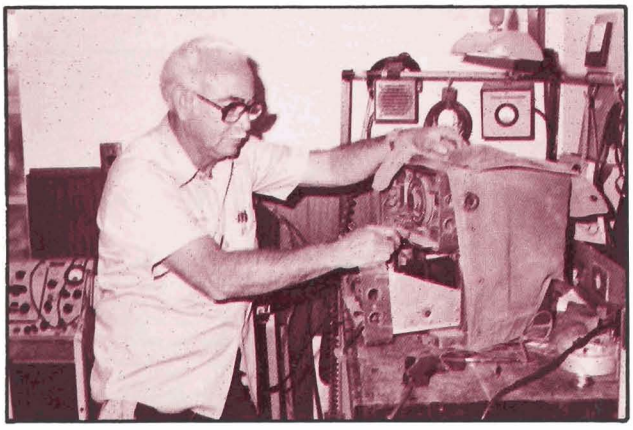
National Guard technicians, under PL 90-486, are required to be members of the Guard and fill a TOE/MTOE/TDA position in their respective units or commands. They hold the military grade specified by the Secretaries of the Army and the Air Force, depending on which branch employs them. Job descriptions dictate whether the technician hired will be of officer, warrant officer, or enlisted status. The technician must occupy a compatible Specialty Skill Identifier (SSI), Military Occupational Specialty (MOS), or Air Force Specialty Code (AFSC). Due to the operational concept of instant military readiness of the National Guard, technician employees are required to wear the military uniform appropriate to their service and grade. A recent Management/Union agreement allows nonsupervisor technicians to wear an approved civilian type uniform instead of the military uniform if they elect to do so.

The law also provides that a technician who is separated from the National Guard, or ceases to hold the military grade specified for his position, shall be promptly separated from his technician employment.

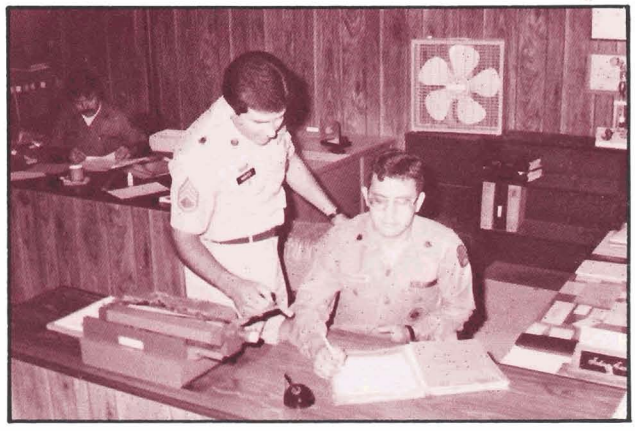
The concept of the full-time civilian program for a technician is that his civilian work will be performed in the same unit in which he holds a mobilization assignment. In other words, the technician would perform his civilian work and training duty (and be mobilized to active duty) in the same unit.

National Guard technicians provide a nucleus for each Army and Air Force Selected Reserve unit which increases the mobilization readiness of that unit. Their employment is designed so as to contribute effectively to the accomplishment of the military mission. This employment scheme insures that the civilian cadre will serve with a unit prior to, during, and after mobilization. It also guarantees availability of a cadre in any emergency, whether Federal or state.

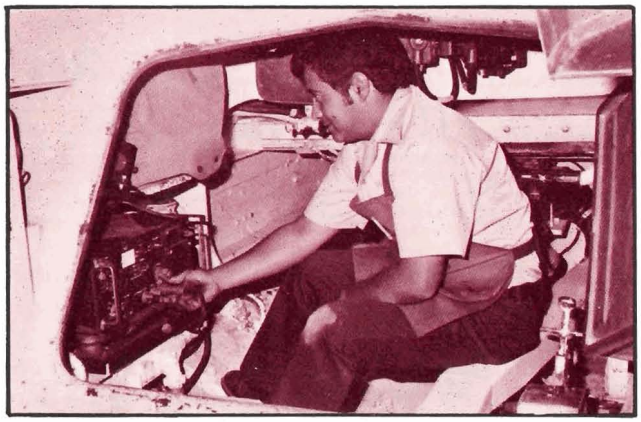
National Guard technicians in this type of employment are tasked to provide full-time com-



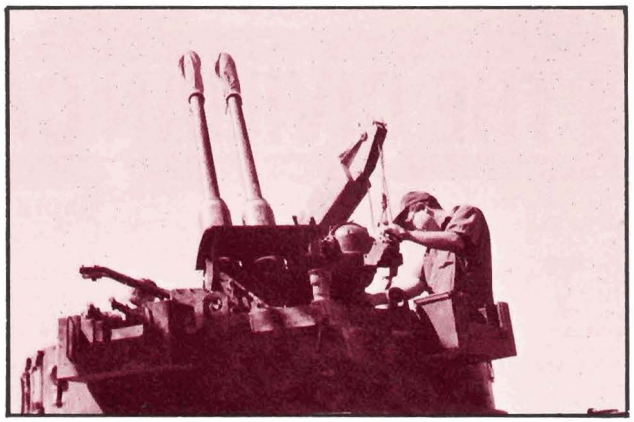
Lupe Ontiveros (WG-11) is employed at Dona Ana Range Camp as an electronics technician. He holds a TOE position with the 642d Maintenance Company with a mission to support air defense units of the New Mexico Army National Guard.



Administrative support for National Guard air defense battalions is performed by personnel administration centers (ACs). Shown are SP5 Navor Chavez (GS-5), SSG Frederick Montez (GS-5), and SP5 John Archuleta (GS-5).



SFC Jerry Smith (WG-11) checks out communications equipment in an M42 Duster being refurbished at Dona Ana Range Camp.



SGT Ray Provencio (WG-9), a general mechanic, is shown repairing computing and fire control equipment on an M42 Duster.

mand, control, and maintenance of equipment; maintenance of administrative records; and training support to the part-time personnel of the National Guard. Technicians are responsible for maintaining operations on a day-to-day basis. They keep the aircraft, air bases, equipment, armories, and facilities functioning in a deployment-ready status. In this manner they are instantly available during periods of state or Federal emergency and for annual training and weekend unit training assemblies.

Looking at the National Guard structure, the National Guard Bureau is a joint bureau of the Departments of the Army and the Air Force. It formulates and administers the programs under which full-time technicians operate. National Guard units are in all of the 50 states, the Commonwealth of Puerto Rico, the District of Columbia, and the Virgin Islands. Each state Adjutant General is responsible for implementing National Guard Bureau policies for his state. The National Guard Technician Act of 1968 provided for the employment of up to 42,500 technicians by the National Guard Bureau. Prior to 1968, technicians were employed and controlled by their respective states.

Each state has a Technician Personnel Office to administer the Federal Employment Program for its Adjutant General. Its responsibility encompasses labor-management relations, employee services, and personnel management services. The Technician Personnel Office also determines technician training needs and arranges for civil service training courses or military courses in technician status. The majority of the courses are taught at the National Guard Professional Education Center, Camp Robinson, Arkansas. The Center is operated by the National Guard Bureau and specializes in subjects peculiar to the National Guard. All other courses are taught by Army and Air Force service schools or regional civil service centers.

Salaries paid to National Guard technicians are at the same level as other Federal employees of equivalent grade. Funding is paid in full by the

SP5 Margarito Frausto (WG-9), Air Defense Artillery Mechanic, and SFC Roland Frost (WG-11), Fire Control Technician, repair an M42 Duster at Dona Ana Range Camp.

Three Dona Ana Range Camp employees complete a test on an M42 Duster. Shown are SP5 Simon Sanchez (WG-9), SSG Carl Clark (WG-11), and SP5 Bill DeMarco (WG-9).

The Army air defense command post radio teletypewriter rig is inspected by MSG Albino Hernandez (GS-7), Operations Sergeant for the 2d Bn, an air defense battalion in Southern New Mexico.

Air defense early warning is of prime importance to technicians SP5 Ted Lauturner (WG-9) and SFC Manuel Villa (WG-10) as they repair the battalion's acquisition radar.

Federal Government. Supervisory and administrative technicians normally are employed under the General Schedule (GS) pay scale. Technicians working as mechanics, or in a technical field, are under the Wage Board (WB) pay scale.

A vacancy existing in the technician personnel program will be filled by selection of a qualified person submitting an application for employment. All vacant positions are advertised in the area of consideration except temporary appointments under 120 days, reassignments in the same grade and occupational field, and reassignment of adversely affected technicians to the same or lower grade. The assignment of titles, series, and grade requirements for employment are made at the National Guard Bureau. The Bureau also updates position descriptions to identify compatible career fields and activities to which technicians must be assigned.

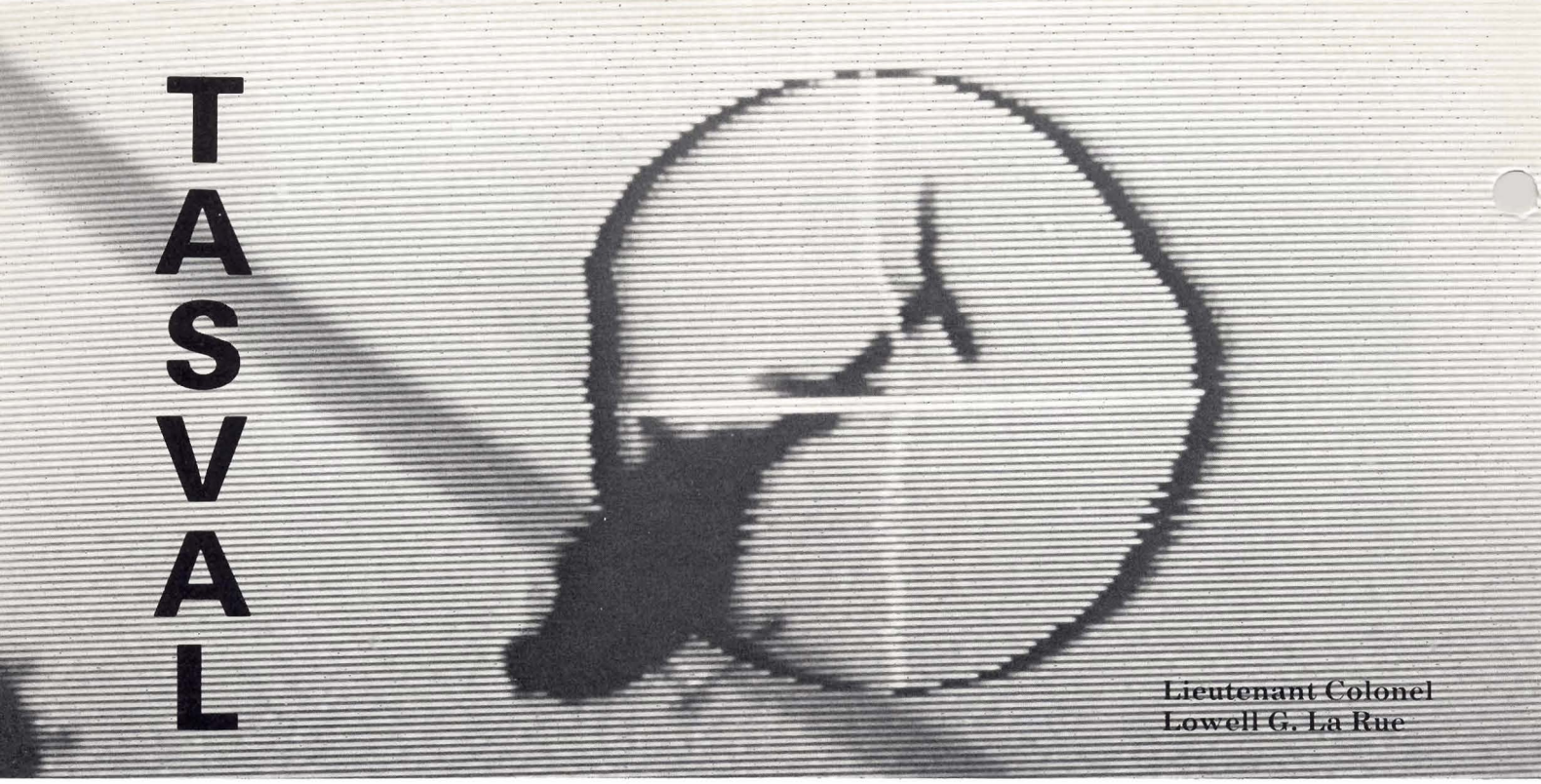
In summary, National Guard technicians have a dual status as military selected reservists and Federal Civil Service employees. Technician job descriptions and grades relate to the military positions and grades in their assigned unit. Technicians must be fully qualified under both the technician criteria and the military criteria of the military space occupied.

The civilian cadre is designed to improve the mobilization readiness of the units to which they are assigned. The program insures that they serve with a unit prior to, during, and after mobilization; and guarantees their presence in the unit in an emergency.

Editor's Note: Reserve components were recently directed by Congress (House Report 95-1398) to conduct a test program by hiring technicians in an active military status. The test phase has been budgeted through FY 1980. Technicians hired under this program must meet the same requirements as those laid down by the National Guard Bureau and Civil Service Commission. They must fill appropriate technician position descriptions, be placed in MTOE/TDA positions, and be in a compatible grade and skill. Reserve Component technicians under this test have all the privileges active duty soldiers have except that they are on active duty under Title 32, USC Section 503, and under the control of the state Adjutant General. Active Army soldiers are under Title 10. If the program is adopted for continuation beyond the test period, an appropriate career management system will be adopted.

Captain Montoya attended the University of Missouri and has graduated from several military courses, including the Command and General Staff College. He has served in Air Defense Artillery command and staff positions both in the United States and Germany. He is presently employed as an Operations and Training Specialist and is assigned as Assistant Operations Officer, 2d Battalion (AW) (SP), 200th Air Defense Artillery, Las Cruces, New Mexico.

TASVAL



Lieutenant Colonel
Lowell G. La Rue

Tactical Aircraft Effectiveness and Suitability in Close Air Support of Antiarmor Operations Test and Evaluation (TASVAL) was the name given to a joint Army-Air Force-Marine Corps test of tactical air power. The test was conducted at Fort Hunter-Liggett, California, from April through September 1979. During TASVAL trials, a simulated "Threat" tank battalion, which was reinforced with motorized rifle, artillery, and air defense assets was pitted against a US tank heavy team. The Threat Forces launched breakthrough attacks while the US forces attempted to deny victory by employing the active defense. The US team was supported by an assortment of air assets to include TOW Cobra helicopters and the new A-10 close air support aircraft, whose main armament is the GAU-8 30-mm rapid-fire cannon and the Maverick missile. TASVAL provided data for determining the effectiveness and survivability of various mixes of these aircraft in a heavy defense environment. The Threat Forces were portrayed by the 4th Battalion, 40th Armored, from Fort Carson, Colorado. Support was provided by air defense assets from the Army Air Defense Threat Simulators Team and the 5th Battalion, 57th Air Defense Artillery, from Fort Bliss, Texas, along with a Chaparral platoon and Redeye gunners from the 1st Battalion, 51st Air Defense Artillery, Fort Ord, California.

In this report, we want to give the air defense community an overview of TASVAL, point out the extensive air defense artillery participation in the test, and record some of the experiences of a Hawk battalion deployed for 7 months in support of the test. The objectives of TASVAL as defined by the Under Secretary of Defense for Research and Engineering in late 1977 were:

☐ Determine the loss rates of friendly aircraft during antiarmor attack missions in moderately to heavily defended areas.

☐ Determine which Threat weapons or combinations of weapons are most effective in destroying friendly aircraft.

☐ Determine Threat armored target destroyed/damaged rates and which aircraft, weapons, and tactics (or combination thereof) effect maximum kill rates.

☐ Determine friendly aircraft losses versus armored targets killed, considering the effect of tactics and combinations of friendly aircraft (i.e., type and mix of aircraft in the attack force, size of attack force, etc.).

☐ Evaluate the combined effect of AH-1S and A-10 aircraft operating in concert on kill and survivability rates.

☐ Evaluate effects of weather (assumed ceiling and visibility restrictions) and electronic countermeasures on friendly aircraft losses versus armored target kill exchange ratios.

The uniqueness of TASVAL, compared with other exercises, was the extensive instrumentation of player weapon systems and the computerization that was used to score the real-time battle and provide data for analysis. Laser emitters took the place of real weapons, with each player's laser being coded to identify that particular player and weapon. Near-real-time scoring was used for all simulated ground-to-ground and air-to-ground firing, but available computer capacity was insufficient to

permit near-real-time scoring of ground-to-air firing. The near-real-time casualty assessment system used made it possible to keep a rough score on the progress of the battle, even though aircraft kills could not be counted immediately.

All of the ground units and helicopters were equipped with weapon noise/smoke generators that produced an explosion/flash/puff of white smoke to simulate the firing of one of their weapons. The ground units were also equipped with purple smoke flares to be set off when the units were determined by the computer scoring system to be incapacitated or destroyed.

Continuous player position data in x, y, and z coordinates were fed to a central computer system along with weapons firing data. The computer system provided "killed" indications to ground players and recorded the real-time battle results for post-trial analysis. Extensive use was made of video camera and recorders mounted on weapons in validating the results of trials and assisting in post-trial analysis. Each trial revolved around attack by a Red Force of tanks, self-propelled artillery, and antitank missiles (supported by air defense artillery) against a defending Blue Force of tanks and TOW missiles supported by one of three air support packages — A-10 attack aircraft only, attack helicopters only, or a combined A-10/attack helicopter force. Within constraints of the test conditions, limited terrain, instrumentation, along with time constraints and tactical doctrine, players were allowed free play, making each trial a unique battle.

The trials were conducted in two, long north-south valleys, one consisting of rolling barren terrain and the other of rolling forest land. Typically, each exercise began as the Red assault force rolled down the valley from the north. As the Red Force came within range of the defended areas, Blue Force tanks and attack helicopters opened fire, supported by low-altitude A-10 attacks. Each battle or trial lasted about an hour. During any given trial, as many as 80 short-range, highly maneuvering air targets were presented to Red Force air defense units.

Air defense artillery participation in the test was extensive and critical to meeting test objectives. Red Force air defense systems were portrayed by US Army current inventory weapons acting as surrogates and air defense artillery simulators. The SA-8 and SA-9 systems were surrogated by the Hawk and Chaparral, respectively. The SA-7 and the ZSU-23 antiaircraft guns were portrayed by threat simulators.

Full Hawk batteries were deployed to the test site. During the instrumentation development and testing stage of the test (March through May), the units were able to perform deep maintenance activities and extensive movement training. The final battery configuration for TASVAL consisted of a continuous-wave acquisition radar, two Hawk high-power illuminator radars (HIPIR), battery control central (BCC), information coordination central (ICC), and two simulated transporter-erector launchers (modified 2½-ton trucks) per battery. Each Hawk battery, with its associated transporter-erector launchers, represented the firepower of two SA-8 fire units. The units were deployed to present varying threat arrays through occupation of eight different tactical sites representing assumed typical SA-8 firing positions. Throughout the record testing, the batteries conducted two to four movements per week.

The two major instrumentation projects for the Hawk units were tapping of the ICC to provide target azimuth data to the TASVAL computer systems and the addition of a video system. Azimuth bit data were picked from the ICC, fed through a micro processor in the instrumentation package, and transmitted to the TASVAL computer through radio relay.

Two television cameras (long- and short-range) were mounted on the HIPIR antennas. Each firing console officer was provided a television monitor hung from the ceiling of the BCC and a foot switch for camera selection. The television system provided a crude but usable system for manual tracking of targets. Although radar tracking was the primary system used, all types of targets were tracked using the television system during the test. Typical target presentations throughout the test were quick-maneuvering, high-speed aircraft and helicopters at 0 to 200 feet above terrain. Aircraft exposure time was generally 25 seconds or less.

The major benefits derived from a test such as TASVAL were the experiences gained in virtually every area of battalion operations. This included the planning and execution of a battalion deployment and recovery for the 7-month exercise. Personnel and logistics proved to be two of the more interesting aspects of the exercise. Personnel administration and the turbulence caused by PCS/ETS orders transmitted over the 1,100-mile separation from Fort Bliss were extremely challenging. Additionally, each staff section and battery had to divide assets between Fort Hunter-Liggett and Fort Bliss. This created a situation that demanded the utmost in command, coordination, and control. Establishing a logistical pipeline that stretched over the 1,100 miles and deployed to a location where Hawk GS level support was not available placed severe demands on the direct support platoon.

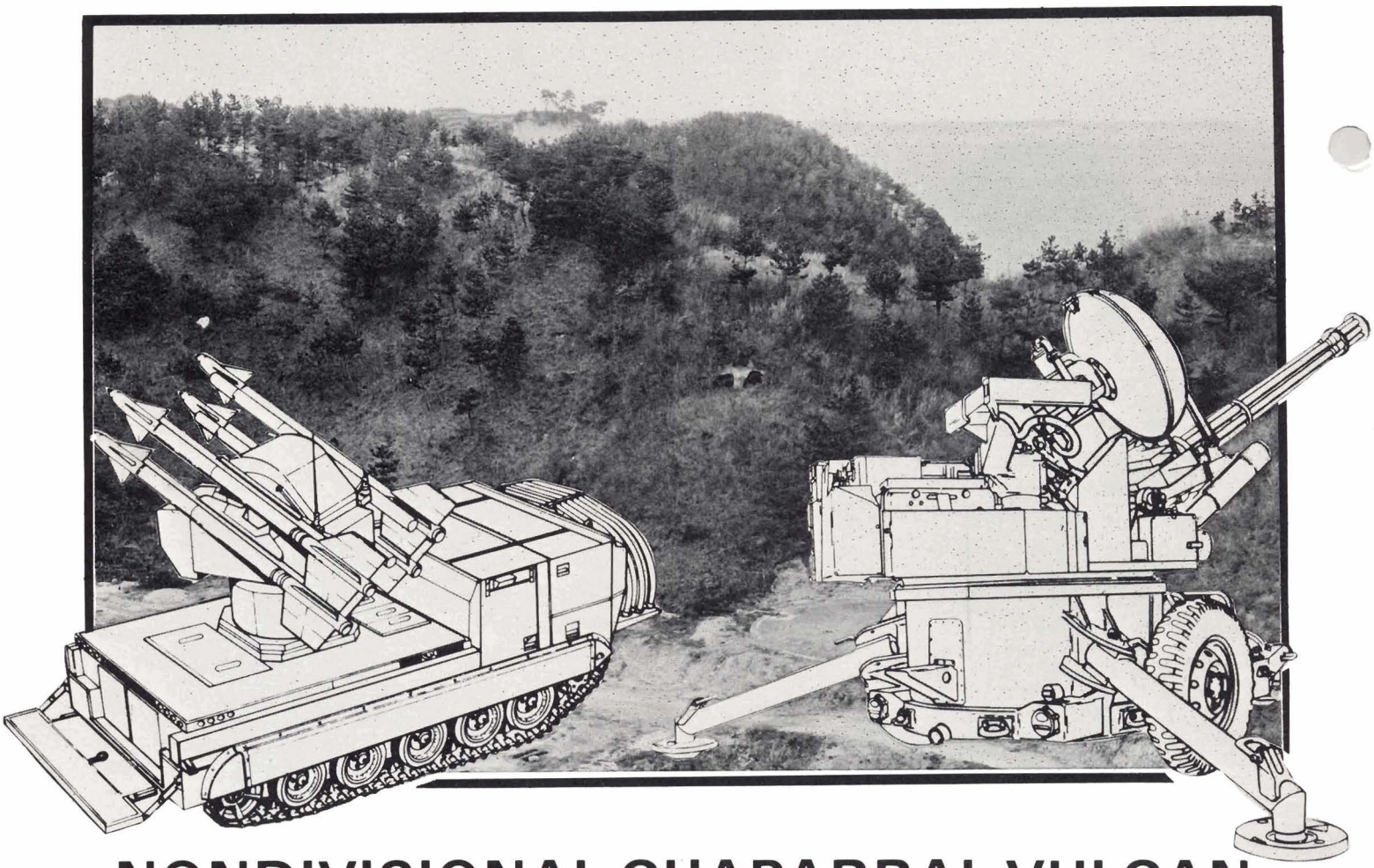
The nature of the test offered maximum opportunity for operator and maintenance personnel to

Army attack Cobra helicopters, as well as USAF A-10 jets, are prime targets for ADA training simulator gunners. They become very proficient at knocking the "friendly" force out of the sky.

have hands-on time with the equipment. The addition of an optical system enhanced operators' confidence because they could visually monitor each HIPIR's performance throughout an engagement. The experience gained by the staff while functioning in a joint environment was both unique and invaluable. In retrospect, TASVAL was an extremely challenging task that provided unique and satisfying experiences for the members of the Red Lion Battalion.

Lieutenant Colonel LaRue was commissioned through the ROTC program at the University of Nebraska. He is a graduate of the ADA Officer Advanced Course and the Command and Staff General College. He has served in air defense units in Korea, Europe, and the continental United States. He has also served as an ROTC instructor at Texas Tech University. His present assignment is commander of the 5th Battalion, 57th Air Defense Artillery, Fort Bliss, Texas.

Photos by SSG Bob Hubbert



NONDIVISIONAL CHAPARRAL VULCAN

Captain Robert M. Reddick

Virtually all of us in the air defense business are familiar with the doctrine that provides for low-altitude air defense of the Army's infantry, armor, and mechanized divisions. Currently, each of these divisions is to have an organic Chaparral/Vulcan (C/V) battalion, the mission of which is to provide low-altitude air defense coverage in the division's area of operation. A lot of ink has been spilled about the "nuts and bolts" of how these divisional (C/V) battalions perform their missions. This article, while still focusing on Chaparral/Vulcan, will deal with the not so well known "nondivisional" C/V battalions and will examine only the primary ones. Specifically, the mission, organization, command structure, equipment, and support concept will be discussed.

The current force structure provides for two nondivisional battalions. They are the 2d Battalion, 60th Air Defense Artillery, with its headquarters at Ramstein Air Base, Germany, and the 6th Battalion, 56th Air Defense Artillery, with its headquarters at Spangdahlem Air Base, Germany. After training at Fort Bliss, both units were deployed to Europe in the summer of 1970 and assigned to the 32d US Army Air Defense Command (32d AADCOM). Let's look at the mission of the nondivisional battalion. As for any C/V unit, the mission is to provide air defense against the enemy's low-altitude attack aircraft. The difference in the mission of the nondivisional battalion from that of the division C/V battalion is that the nondivisional battalion is not tasked to defend the ground-gaining units but to defend the rear-area critical assets. They may include any facility deemed critical by the theater commander (in Germany, that's the Supreme Allied Commander Europe (SACEUR)), including depots, airbases, or port facilities. In contrast, the division battalion provides low-altitude coverage throughout the division's area of operations as directed by the division commander.

To answer the "for whom" question, let's look at the command structure above these nondivisional battalions. Figure 1 portrays the command relationships found today.

SACEUR has delegated operational command through Allied Forces Central Europe (AFCENT) and Allied Air Forces Central Europe (AAFCE) to the Fourth Allied Tactical Air Force (4ATAF). The 32d AADCOM and its subordinate units belong to NATO and operate directly in response to the Commander, 4ATAF. This implies that the nondivisional C/V battalions, as with all ADA units assigned to the 32d AADCOM, link with NATO

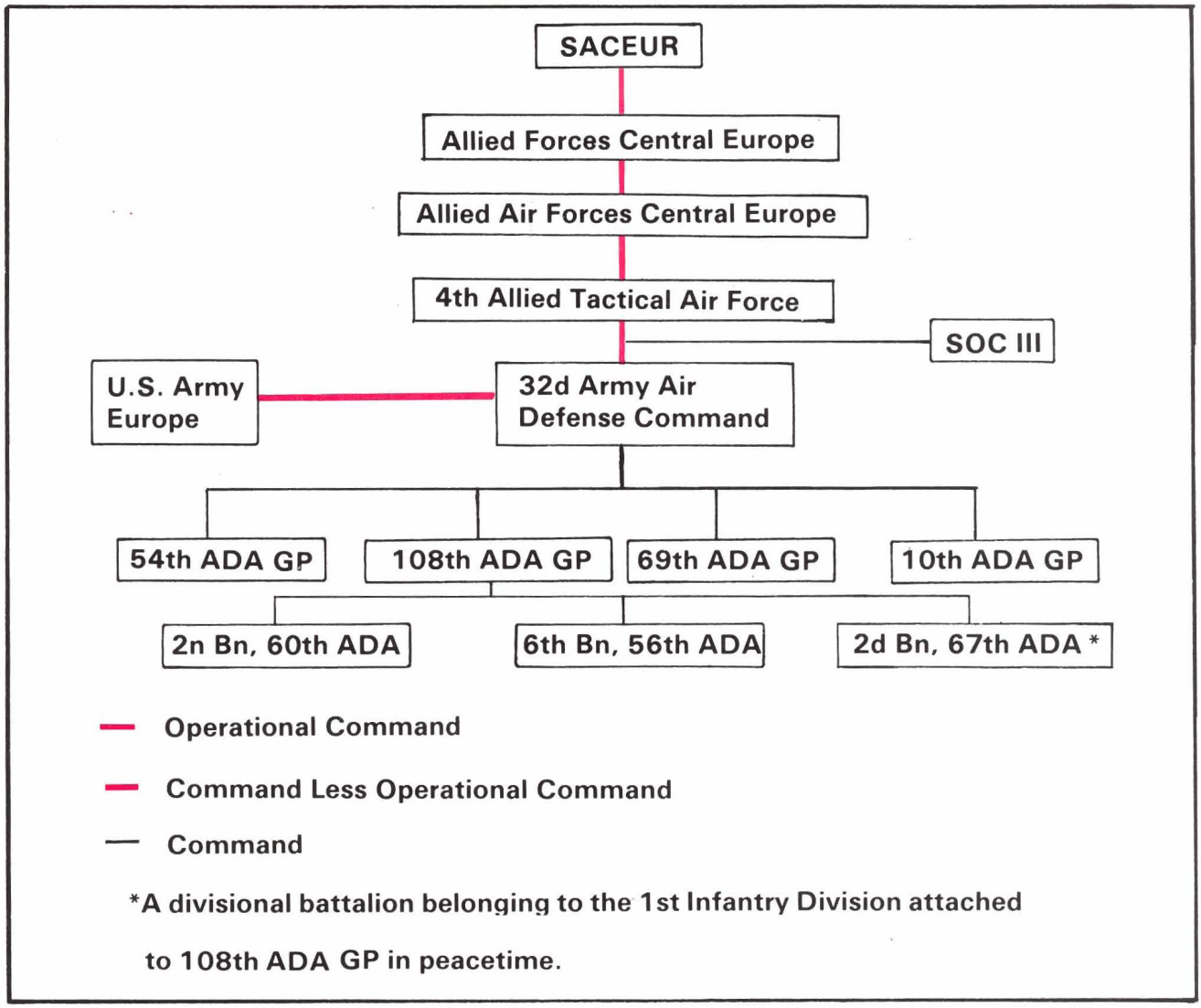


Figure 1

through Allied Air Force. The divisional C/V battalions, however, being organic to their respective divisions, link to NATO through the national army groups. The 32d AADCOM is the only USAREUR major subordinate command as well as the largest US organization under the operational "command" of NATO during peacetime. Due to this unique command structure and mission, the traditional direct support (DS), general support (GS), general support reinforcing (GSR), or reinforcing (R) relationships, which we are accustomed to seeing C/V battalions establish, do not exist between these nondivisional battalions and supported Army units. While the divisional battalions do not fall under the command of NATO within the European environment, they are regulated by NATO in their conduct of ADA operations.

The divisional C/V battalion commander still responds directly to the division commander for mission and priority assignments. This is the relationship that exists throughout the Army's divisions. Hence, the traditional support relationships are established between the divisional battalion and the units to which it provides support within the division's area of operation.

Although the missions of both divisional C/V and nondivisional C/V are similar, the areas in which they execute their low-altitude missions (and their respective chains of command) differ significantly. To see how the nondivisional battalion carries out its mission, let us examine the internal organization. Figure 2 shows the internal structure of the nondivisional battalion. Inspection of this diagram reveals several major points. These and other differences stemming from their structural differences are highlighted in figure 3.

The nondivisional unit, because of its rather static defense mission, does not require the mobility of the divisional battalion, hence towed Vulcan and wheeled command vehicles are used as opposed to tracked.

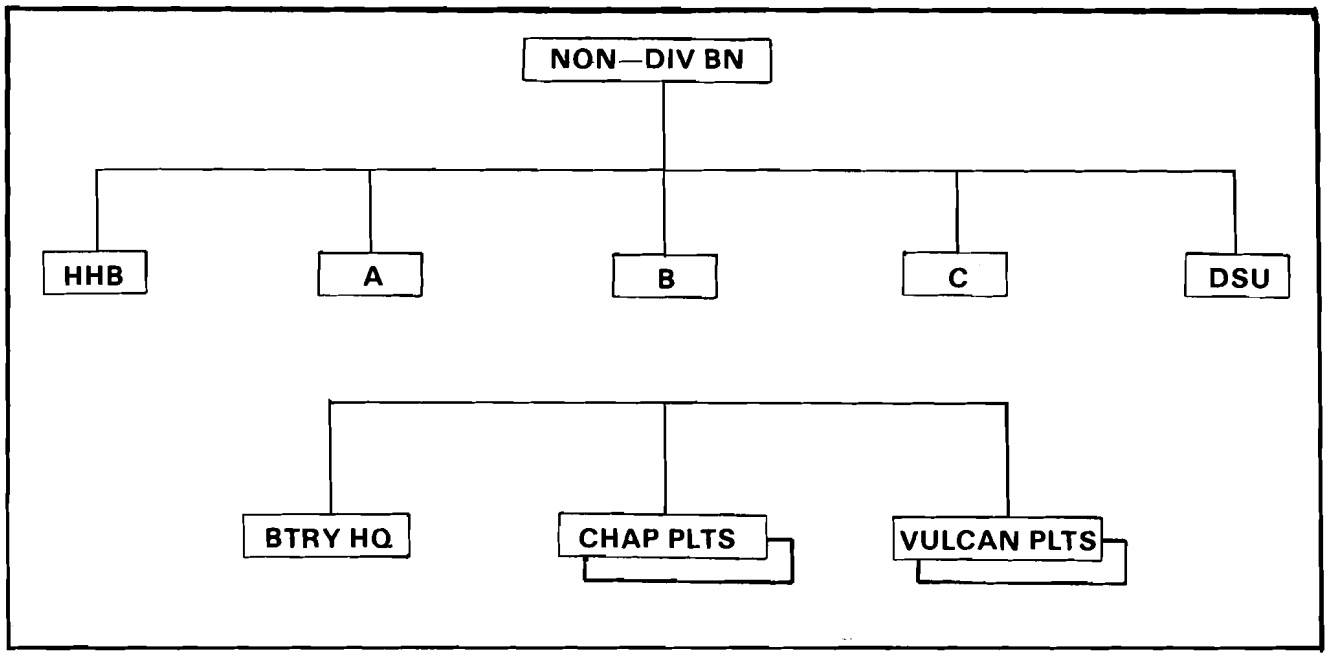


Figure 2

Although the overall mobility is less than that of a divisional battalion, the nondivisional battalion has a like firepower capability in that it contains the same number of weapon systems as the divisional battalion. The 48 weapon systems of the nondivisional battalion are divided equally between missile and gun, with each of the 3 batteries being a composite of 8 guns and 8 missile systems. This enables a desirable mix of weapon systems to be deployed around the defended area without the need for cross attachment. This also fosters battery integrity, a quality that is generally disrupted in the divisional battalion because task organizing in most cases requires cross-attachment of missile and gun platoons to provide a proper weapons mix to support the mission. Also, there is the capability of each battery of the nondivisional battalion to repair and maintain both the Vulcan and Chaparral systems at the organizational level. This dual maintenance capability is not the case in the divisional battalion, since each battery has the ability to provide organizational maintenance to either the Vulcan or the Chaparral only.

To summarize the difference in internal structures, it is fair to say that the respective missions have dictated the structure. The divisional battalion structure lends itself to mobility, task organization, and flexibility, while the nondivisional structure supports the less mobile mission and achieves a desirable mix of both gun and missile systems.

Finally, let's compare the support concept used for the divisional unit with that employed by the nondivisional battalion. The divisional battalion obtains all necessary supplies, services, and maintenance through the Division Support Command (DISCOM). The DISCOM is a major command on the same level as the brigades and the division artillery. It is composed of a headquarters and headquarters company, adjutant general company, finance company, medical battalion, maintenance battalion, and a supply and transportation battalion. All the direct support maintenance, both conventional and missile peculiar, for the divisional battalion comes from the maintenance battalion, with the exception of medical, communications security, airdrop items, and light textiles. The divisional battalion has no organic direct support unit like the nondivisional battalion. Items of equipment requiring repair above the DS level must be evacuated outside the division to GS units in the rear. This type of support organization is advantageous to the divisional battalion commander in that all activities are centralized and in proximity to one another.

The nondivisional battalions are under command of the 32d AADCOM. While being of division size (15,000+ personnel), the 32d AADCOM has no organic support element to provide maintenance, supplies, and services such as DISCOM provides to the division. The nondivisional battalion has the capability to provide DS maintenance to the firing batteries for both the gun and missile systems through its organic direct support unit (DSU). However, it must look outside the parent organization for other DS maintenance as well as for supply and service activities. As with the divisional battalion, the GS requirement must be met by GS units in the rear.

Div C/V	Non-Div C/V
1. 4 firing Btrys per Bn	1. 3 firing Btrys per Bn
2. 3 firing Plts per Btry	2. 4 firing Plts per Btry
3. Each Btry is either all Vulcan or all Chaparral.	3. Each Btry contains 8 Vulcans and 8 Chaparrals (complete).
4. The Vulcan is the M163A1 (self propelled).	4. Vulcan is the M167A1 (towed).
5. M113s are used as command vehicles.	5. Jeeps (M151) are used as command vehicles.
6. No organic direct support capability.	6. Organic direct support unit for both gun and missile systems.

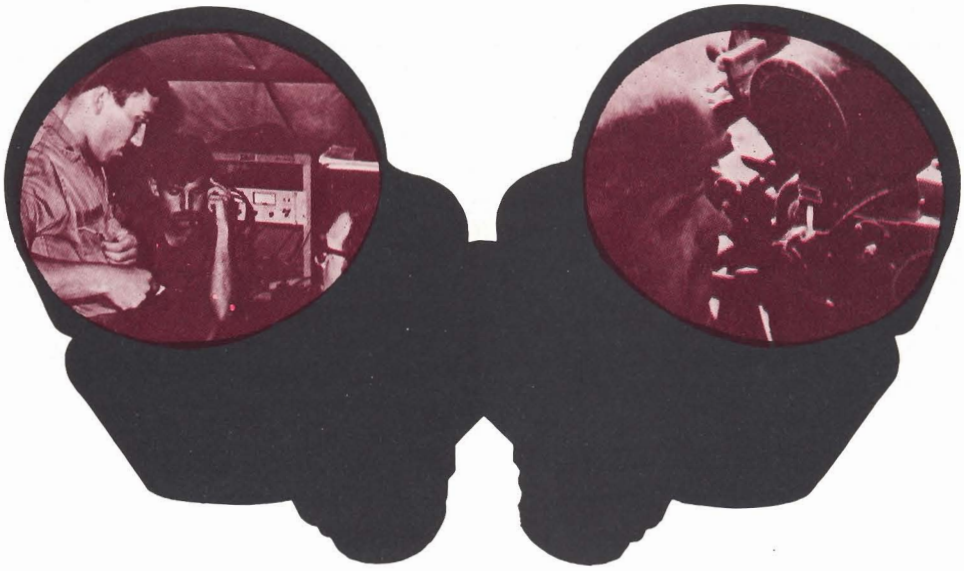
Figure 3

The support structure and the geographical dispersion of the firing batteries pose two significant problems for the nondivisional battalion commander. The first is caused by the separation of the batteries from their supporting activities. The result is a large amount of resources being spent in transportation alone. Due to geographical separation, all the batteries of a given battalion do not necessarily "do business" with the same support activities. Units from one battalion may deal with two or more finance, personnel, medical, communications maintenance, and conventional maintenance activities. Obviously, this poses problems in standardization of procedures throughout the battalion and in consolidation of maintenance and administrative activities at the battalion level.

The second major problem area is one of what I call "command emphasis." In the division the commander not only commands all the maneuver battalions and combat support battalion, he also commands the units that provide maintenance, supplies, and services to his division. We have seen that this is not the case within the 32d AADCOM. Each of the various support activities with which the nondivisional battalion must deal has its own chain of command. Because DS maintenance, supply, and service activities lie outside the parent organization, the difficulty in obtaining necessary services is magnified for the nondivisional battalion.

This article has attempted to highlight the uniqueness of the nondivisional C/V battalions and how they fit into the overall scheme of air defense within the European Theater. Their uniqueness in structure and mission makes an assignment to a nondivisional C/V battalion a challenging and rewarding experience.

Captain Reddick holds a degree in Business Administration from the University of Iowa. After being commissioned and completing the ADA Officer Basic Course, he served in various command and staff positions with units in Germany. A recent graduate of the ADA Officer Advanced Course, he is now assigned as Assistant S3, Headquarters, 9th DIVADA, Fort Lewis, Washington.



VIEW from the FIELD

CEE VEE EXTEV AZTEC SHIELD COMBINED WITH AIR FORCE MINIMOB IV

Story and Photos by SP5 Marc Ficco

If you thought Army abbreviations and acronyms were confusing, try this one on for size.

Last week, the Cee Vee EXTEV Aztec Shield was combined with MiniMob IV, and DAME played a key role.

Translated, two batteries of the 4th Battalion, 61st Air Defense Artillery, at Fort Carson, Colorado, took their annual external training evaluation exercise working with the Air National Guard's 154th Tactical Flight Control Group on its annual active duty training exercise, MiniMob (minimobilization). Using a tactical radar site with a UPA 48 radar scope capable of picking up aircraft movement long distances away, the flight control group passed on flight movement information to an air defense liaison and the division airspace management element (DAME).

A Battery B Vulcan crew readies for action on a mesa downrange near Camp Red Devil.

SGT Michael Clapper points out a target to his gunner, CPL August McLean, during their battalion EXTEV.

Left to right — MSG Gary Frost, A1C Larry Mello, and SrA Pam Croushore, all from 154th Tactical Flight Control Group at Buckley Air Force Base, Denver, Colorado, study flight patterns on the UPA 48 radar scope at the early warning radar site.

The air defense liaison then passed this information to the forward area controller who, in turn, notified the firing batteries.

The battalion EXTEV, dubbed Aztec Shield, tested batteries B and C, Vulcan and Chaparral batteries, respectively.

The batteries fired live ammunition in day and night exercises, then targeted on possibly the largest assortment of aircraft over Fort Carson ever.

According to the battalion assistant S3 officer, 1LT Richard Bifulco, an assortment of aircraft, including B-52 bombers; F-111, -105, -106, and -16 fighters; A-7s; and 02 Skymasters buzzed the batteries to be engaged as targets. Cobra helicopters from Fort Carson were also in the vicinity regularly.

Lieutenant Bifulco, who worked closely with the Air Force element as air defense fire control officer for the exercise, said, "We've never operated like this before. The cooperation from the Air Force has been fantastic, both with the radar site and with the number of aircraft they arrange to fly over post."

"The section interplay between the radar site and the forward area control point has been excellent," Bifulco added.

The Cee Vee battalion finished Aztec Shield in the latter part of July 1979.

the Air force connection

(The Air Force Electronic Warfare Center: A Source of Assistance)

CW4 Donald E. Macaulay

There is a recognized need for increased emphasis on the electronic warfare (EW) role in air defense. But this emphasis should not be limited to newer or more sophisticated hardware.

What we need as a starter is a major effort toward education. Airdefenders need to know how to employ, control, and maintain weapon systems in the EW environment we can expect to encounter in any future conflict. Much information is available from our experiences with EW in Southeast Asia and the Middle East, as well as from ongoing research.

To counter the electronic warfare threat, new methods of employing EW assets for offensive and defensive actions are constantly being examined by various agencies, and some EW data are available from them. One such agency, the Air Force Electronic Warfare Center (AFEWC), is responsible for evaluation and analysis in support of the EW requirements of the armed forces. Located at Kelly Air Force Base, San Antonio, Texas, the AFEWC performs the specific functions of EW data processing and analysis and reporting of meaconing, intrusion, jamming, and interference (MIJI).

With the increased high-level attention given to electronic warfare, emphasis is being placed on providing EW assistance to all services through the AFEWC.

The Center maintains an EW data bank, with inputs from many sources, which provides test information as well as correlated data to support EW planning and operations for all major commands.

To assist armed forces units and EW training activities, AFEWC publishes an index of its studies in the "Electronic Warfare Reports Index," available from the AFEWC. Those wishing to use this material can find short synopses and titles of the studies in the index. Most reports are classified SECRET.

Some AFEWC analysis results are widely distributed in serialized reports while others are provided only to the tasking organization. One example is a support project relating to short-range air defense evaluation that was performed in 1975. It is published and listed in the index as EB 12-75. The purpose of the project was to evaluate the Crotale, Rapier/Blindfire, and Roland II Allied-produced weapon systems in an EW environment. Another example is "Improved Hawk Vulnerability to Soviet Airborne Standoff Jammers," published as EB 11-77 in May 1977.

Just as improvements continue to be made in communications, radar, and other electronic systems, so do improvements continue in electronic counter-measures (ECM) systems. Developers capitalizing on the latest state-of-the-art deception techniques have come up with highly sophisticated power management systems that automatically identify, sort, and select the highest priority threat. These systems are available to provide more confusion and degradation to opposing systems on the ground and in the air.

The AFEWC is constantly analyzing methods to overcome these new systems with such projects as counter antiradiation missiles and counter C^3 (command, control, and communications).

The Air Force Electronic Warfare Center is staffed with about 300 people, with representatives from the other armed services and other Government agencies.

With the accelerating pace in technical developments, today's Air Defense Artillery soldier must be vitally concerned with electronic warfare. Think of the new developments in electro-optics (EO), lasers, and relay satellites. These technological applications are available today.

But we must also think of the future. Let your imagination go!

The "Star Wars" approach mirrors the potential of EW: detect, determine, destroy. It is a transition from a passive role to an active force.

When thinking of air defense operations, think EW, and think of the Air Force Electronic Warfare Center as a professional consultant on EW. We at the Center will do our best to help you in any way we can.

The US Army Liaison Officer at AFEWC is LTC Robert Weikle (AV 945-2514), who is assisted by two air defense officers, MAJ Steve Marques (AV 945-2567) and CW4 Fran Vanwychen (AV 945-2514). All are assigned to assist Army units in obtaining information and coordinating inputs to update the Center's data bank. For further information, contact them by AUTOVON or write: Commander, AFEWC, ATTN: AFEWC/EWR, San Antonio, Texas 78243.

PREPARATION FOR A NUCLEAR SURETY INSPECTION

Captain John M. Urias

The Nuclear Surety Inspection (NSI) is perhaps the most rigorous, comprehensive evaluation to which a nuclear-capable Nike Hercules unit is subjected during its annual course of inspections. A US Nike Hercules battery in Europe undergoes an average of 1.8 inspections a day, forcing the unit to maintain a high level of training year round. The NSI is the culmination of the unit's inspection schedule and it affects the success or failure of the unit as a whole.

The test provides performance data for commanders at all echelons and assists them in the discharge of their nuclear responsibilities. As stated in Technical Bulletin IG5, the standardized Nuclear Surety Inspection:

- ☐ Enhances unit readiness.
- ☐ Assists in the prevention of nuclear weapon accidents and incidents.
- ☐ Insures physical security of nuclear weapons.
- ☐ Insures the highest standards of performance in operations involving nuclear weapons and associated equipment.
- ☐ Directs attention to those problem areas that require command attention and assistance.

Many facets interplay in the makeup of an NSI, ranging from the intense preparation phase to the actual, pressure-packed conduct of the inspection. I spent 3 years assigned to Battery C, 2d Battalion, 1st Air Defense Artillery (Nike Hercules-Germany), and was responsible for successful ratings during three major inspections. As a result, I think a brief discussion of the preparation phase for an NSI would be interesting to the reader, especially those who are destined for Nike Hercules assignments in Europe. There may be inherent differences from unit to unit, but this discussion should provide a fairly standard approach that may be adapted to any Nike Hercules unit.

A nuclear-capable unit is continuously "under the gun," being observed from different angles by many searching eyes. To survive the myriad of evaluations and preserve its certification as a nuclear-capable unit, a battery must maintain the highest level of training and readiness all year. Therefore, preparation for an NSI means applying the finishing touches to an already well-prepared, fully capable unit. This is not an easy task.

Preparing for an inspection entails several major tasks: security training; area beautification and maintenance; technical operations training; and the review, revision, and approval of unit plans, records, and documents. Each major task is composed of a number of subtasks, all requiring organization and coordination so that no requirement is overlooked. A detailed planning schedule is essential for a smooth operation. Scheduled work should begin approximately 6 months prior to the inspection date and include all major projects that need to be accomplished within the specified time.

A more itemized itinerary should be prepared at least 30 to 45 days prior to the NSI to provide a more rigid framework for the conduct of the latter portion of the preparation phase. These planning schedules must be disseminated to the widest extent possible to keep all personnel informed and promote a professional organization. It is helpful to hold battery or platoon conferences where questions or need for changes can be discussed and decisions made.

I must emphasize the necessity for following correct procedures and that day-to-day operations be maintained efficiently year round. Their impact on the outcome of the NSI is great. Units that do not follow this rule will surely find themselves in difficulty from the start. A sense of disorganization and lack of attention to detail will develop and jeopardize any chances of achieving a satisfactory rating.

SECURITY TRAINING involves everybody in the battery because regulations require that everyone be familiar with actions to be taken should the site be attacked. Classes are conducted continually to insure that unit personnel know about the usage of deadly force; potential threat to the site; protection against nuclear, biological, and chemical agents; and safety and security requirements, as well as the fundamentals of soldiering. Security inspections are conducted by supervisors in the unit regularly to assess strengths and weaknesses. These inspections also help single out personnel who have an outstanding grasp of security knowledge so they can be slotted for the more critical positions. Unit security inspections stimulate competition within the unit because each security guard attempts to become the best. Security training also includes weapons familiarization, terrorist threat briefings, and a thorough check of entry control procedures. Security

alert forces of the unit and supporting headquarters are exercised and inspected regularly to insure that they are well trained and capable of responding to any threat against the site.

AREA BEAUTIFICATION AND MAINTENANCE, in conjunction with security training, are incorporated into the preparation schedule. Perimeter fences, which must conform with height and strength specifications, are inspected by unit personnel to check their state of repair. Supporting engineer personnel are notified to correct any deficiencies.

Lighting for fence lines and guard posts is checked to verify that it meets specified illumination requirements, and the intrusion detection alarm system is tested regularly to insure that it is operating. Communications lines within the unit are checked daily to detect possible problems, and new lines or field phones are installed where necessary.

Area beautification is normally scheduled for the latter portion of the preparation phase. It entails the usual projects of grass cutting, painting, and thorough policing. The objective is to show that your unit considers itself a team of professionals ready for any type of evaluation. Unit slogans can be used throughout the battery as a morale factor in preparing for the NSI. For example, my launcher platoon sergeant came up with "Charlie Battery, Home of the Professionals." It was adopted by the entire battery and helped set the stage for a no deficiency or "closed book" NSI as the unit personnel strove to live up to the name. The initial impression on the inspecting team was most important. It was able to detect the strong sense of pride and determination to excel within the battery.

TECHNICAL OPERATIONS (TECH OPS) TRAINING normally involves the assembly and service personnel in the launching area, but I am including the launching section in my discussion of this major area of preparation for convenience sake. Assembly and service personnel must be thoroughly familiar with technical procedures related to the receipt, storage, inspection, assembly and disassembly, testing, modification, transport, and preparation for firing of nuclear weapons. They are also required to calibrate standards and test and measurement equipment associated with these weapons.

The assembly crew maintains proficiency by conducting warhead operations for each missile on site twice a year. During these on-site operations, the assembly crew is trained on correct buildup procedures, use of tools and test equipment, and actions to take in case of a malfunction where an unsafe condition may occur. During the TECH OPS portion of the NSI, the assembly crew will receive hypothetical inputs from the inspector, simulating the occurrence of one or more malfunctions. The crew is evaluated on its methods of correcting these malfunctions as a team organization.

The assembly crew must also insure that the tools and equipment used during these operations are properly calibrated or load tested. A torque wrench out of calibration tolerance or a hoist beam not properly load tested may result in an unsatisfactory rating for the battery. The crew must likewise be familiar with safety and security requirements that apply to all missiles maintained on site.

The personnel assigned to the firing sections of the launching area have their own duties and responsibilities, all just as important as those of the other battery personnel. A typical US Nike Hercules battery has three firing sections, each with its own launching section crew. These crews are trained on procedures to be used in preparation of a missile for firing or prefire operations.

TECH OPS require that each launching crew be familiar with actions to be taken when an emergency or unusual condition occurs. The actions include emergency disarm procedures, delayed fire, firefighting, or abnormal indications during launcher control-indicator (LCI) monitoring. As the LCI shows one or more of these simulated indications, the crew will be evaluated on its method of handling the situations to restore the weapon to a safe condition.

The launching section crews must also inspect all missiles stored in their sections to insure no deficiencies exist that might cause missiles to become unreliable. Called the Ready Round Inspection, it evaluates the unit's adherence to prescribed safety and technical procedures so that when a weapon is launched, it will detonate at the designated place and time. Some of the section personnel may also be members of the security response forces.

PLANS, DOCUMENTS, AND STANDING OPERATING PROCEDURES (SOPs) must be thoroughly screened, updated, or revised as necessary to comply with changing regulations, and be approved by the appropriate headquarters prior to the inspection date. Examples of the unit's plans include:

☐ Physical security plan.

☐ Nuclear accident and incident control plans.

☐ Emergency evacuation plans or destruction of weapons and components.

☐ Copies of the latest counterintelligence inspection, physical security inspection, and nuclear surety inspection, with corrective actions taken.

Security documents used in the launching area are maintained in security packets for daily inspection. They include security badge inventory sheets, sen-

sitive key and lock accountability forms, weapons and ammunition accountability logs, and communication checksheets. Records of on-site inventories, inspections, and exercises are also filed in the packets.

The unit must engage in coordination visits to the local fire and police departments, arrive at agreement on their support, and prepare documents verifying these agreements prior to the NSI. It must also check to insure that all required publications are on hand or on order.

The battery commander and surety officer, in conjunction with the unit medic and the doctor responsible for the medical side of the unit's nuclear surety program, must check the personnel and medical records for every one in the program. The purpose is to insure that they meet the personnel reliability criteria established by AR 50-5.

All of the foregoing records, plans, and documents will be thoroughly inspected during the NSI. The unit will be required to actually implement various plans and SOPs upon input from the inspector, so it is essential that battery personnel be familiar with these plans. This is a major area of interest to the NSI evaluators as they observe whether the unit actually does what it has said in writing that it can do.

The unit must also prepare an inspection brochure for each inspector. Inclosures include the general unit administrative information, a list of requested simulations the unit desires to use during the inspection, and a proposed plan of operation listing a recommended sequence of events in the order that the battery prefers them to be conducted.

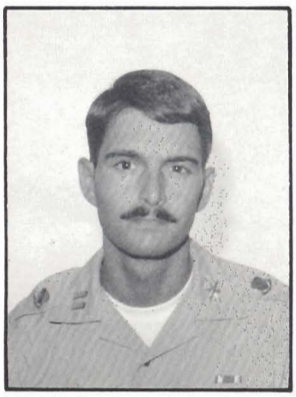
One of the last items in this phase of the preparation cycle is a dry run of the unit inbriefing, normally conducted by the battery commander. The objective is to establish a favorable initial impression on the NSI team and portray a professional, finely tuned unit, fully capable of achieving a satisfactory rating on an NSI.

Associated with the unit's preparation phase are numerous training NSIs conducted by each subheadquarters in the chain of command. Three or four months prior to the actual NSI, the unit's battalion headquarters administers its version of the NSI during the battalion surety assistance visit (SAV). This inspection is conducted in a manner identical to the actual NSI. However, it is primarily a tool to help the unit identify its strengths and weaknesses, correct any problems, and make necessary changes prior to the NSI.

The battalion SAV is followed by the 94th ADA Group SAV and, still later, by the 32d Army Air Defense Command surety evaluation. Inspection assesses unit progress while providing additional sets of eyes to identify problem areas that may have gone undetected. They also provide needed experience for the security personnel in dealing with senior grade inspectors, helping to strengthen their confidence. Training NSIs, in conjunction with the unit's own preparation efforts, help produce a well-trained, totally prepared unit.

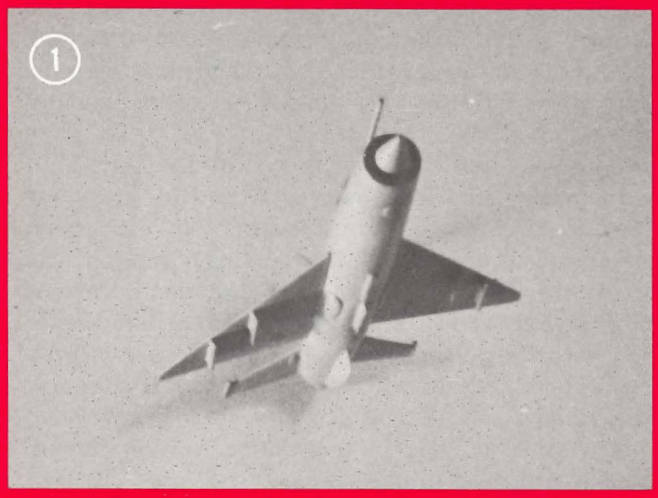
In dealing with this topic, I have attempted to effect a better understanding of some of the effort demanded in preparing for a Nuclear Surety Inspection. Strict adherence to regulations and a comprehensive training program, maintained on a day-to-day basis, are essential elements in guiding a Nike Hercules unit to a satisfactory rating. Key personnel must be thoroughly familiar with their duties, set only the highest standards for their subordinates, and develop both dedication and professionalism to achieve successful results on a Nuclear Surety Inspection.

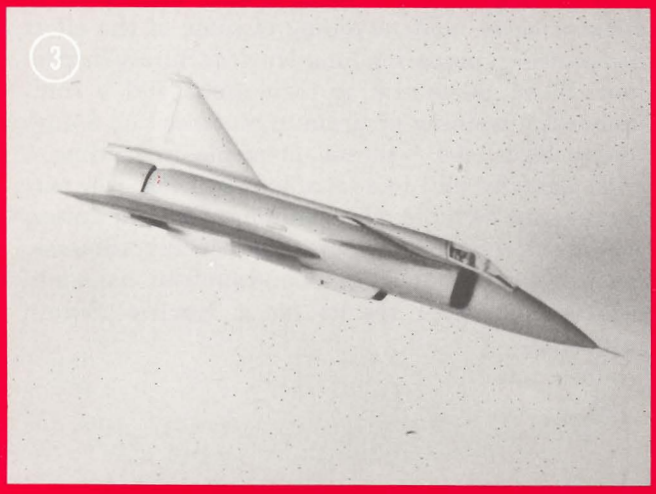
Captain Urias is a distinguished military graduate of the University of California (Davis Campus) with a degree in biological sciences. He has completed four major military courses and was honor graduate of three of them. He has both command and staff experience with Air Defense Artillery units and is currently serving as Assistant S3, 4th Supply and Transport Battalion, 4th Infantry Division, Fort Carson, Colorado.

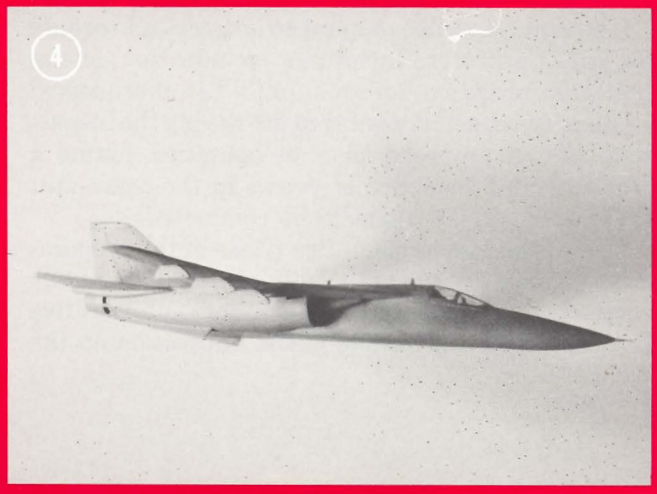


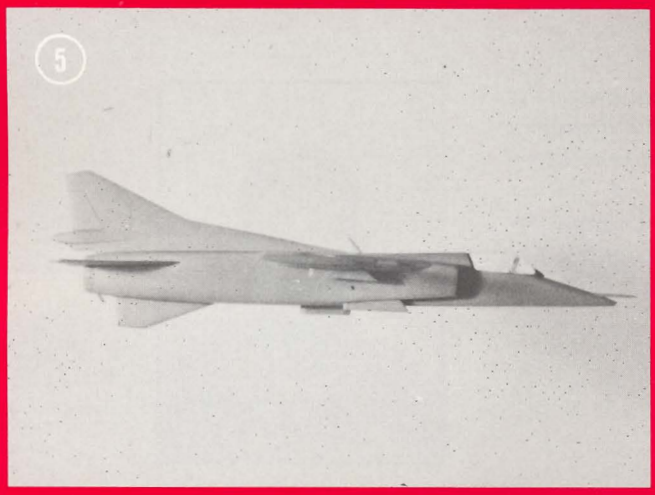
AIRCRAFT RECOGNITION QUIZ

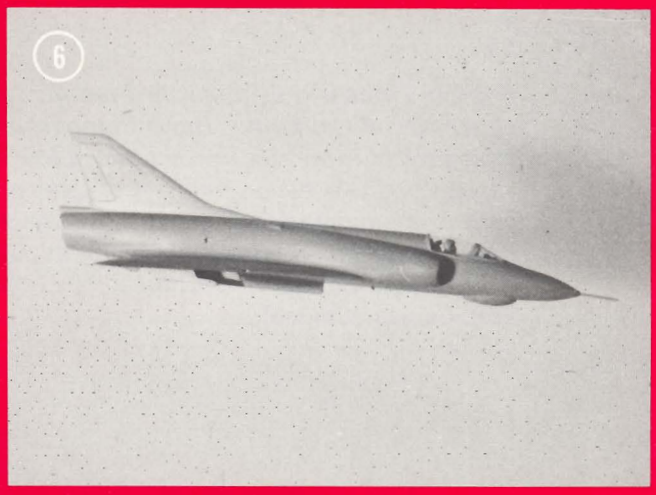
Can you identify these aircraft?
(Answers on page 60.)











Lineage and Honors

AIR DEFENSE Magazine has acquired copies of the official Lineage and Honors of the Air Defense Artillery regiments. Documents will be published commencing with the January-March 1980 issue. We begin with the 1st AIR DEFENSE ARTILLERY, whose regimental insignia appears above.

DEPARTMENT OF THE ARMY

Lineage and Honors

1st AIR DEFENSE ARTILLERY

Constituted 1 June 1821 in the Regular Army as the 1st Regiment of Artillery and organized from existing units with Headquarters at Fort Independence, Boston, Massachusetts

Regiment broken up 13 February 1901 and its elements reorganized and redesignated as separate numbered companies and batteries of Artillery Corps

Reconstituted 1 July 1924 in the Regular Army as the 1st Coast Artillery and organized with Headquarters at Fort DeLesseps, Canal Zone (3d Battalion concurrently organized at Fort Randolph, Canal Zone)

(1st Battalion activated 1 June 1926 at Fort Randolph, Canal; inactivated 31 July 1926 at Fort Randolph, Canal Zone; activated 15 April 1932 at Fort Randolph, Canal Zone. 2d Battalion activated 15 April 1932 at Fort Sherman, Canal Zone, and 3d Battalion concurrently inactivated at Fort Randolph, Canal Zone. 1st and 2d Battalions inactivated 30 March 1941 at Fort Sherman, Canal Zone; activated 17 April 1942 at Fort Sherman, Canal Zone)

Regiment broken up 1 November 1944 and its elements reorganized and redesignated as follows:

Headquarters and Headquarters Battery as Headquarters and Headquarters Battery, 1st Coast Artillery Group
Remainder of regiment as the 1st Coast Artillery Battalion

After 1 November 1944, the above units underwent changes as follows:

Headquarters and Headquarters Battery, 1st Coast Artillery Group redesignated 2 January 1945 as Headquarters and Headquarters Battery, Harbor Defense of Cristobal
Inactivated 15 January 1947 at Fort Sherman, Canal Zone
Redesignated 21 June 1950 as Headquarters and Headquarters Battery, 1st Antiaircraft Group
Consolidated 18 November 1952 with Headquarters and Headquarters Battery, 1st Antiaircraft Artillery Group (see ANNEX) and consolidated unit designated as Headquarters and Headquarters Battery, 1st Antiaircraft Artillery Group
Activated 15 April 1953 at Mannheim, Germany
Inactivated 26 December 1957 in Germany

1st AIR DEFENSE ARTILLERY

1st Coast Artillery Battalion disbanded 1 February 1946 at Fort Sherman, Canal Zone

Reconstituted 21 June 1950 in the Regular Army and redesignated as the 1st Coast Artillery, consisting of the 1st and 2d Battalions which were concurrently redesignated as the 1st and 54th Antiaircraft Battalions, respectively

1st Antiaircraft Battalion redesignated 17 March 1955 as the 1st Antiaircraft Artillery Missile Battalion

Activated 15 April 1955 at Irwin, Pennsylvania

Inactivated 1 September 1958 at Irwin, Pennsylvania

54th Antiaircraft Battalion redesignated 15 December 1954 as the 54th Antiaircraft Artillery Missile Battalion and activated at the US Army Chemical Center, Maryland

Inactivated 1 September 1958 at the US Army Chemical Center, Maryland

Headquarters and Headquarters Battery, 1st Antiaircraft Artillery Group; 1st and 54th Antiaircraft Artillery Missile Battalions; and the 1st Field Artillery Battalion (organized in 1907) consolidated, reorganized, and redesignated 19 March 1959 as the 1st Artillery, a parent regiment under the Combat Arms Regimental System

1st Artillery (less former 1st Field Artillery Battalion) reorganized and redesignated 1 September 1971 as the 1st Air Defense Artillery, a parent regiment under the Combat Arms Regimental System (former 1st Field Artillery Battalion concurrently reorganized and redesignated as the 1st Field Artillery--hereafter separate lineage)

* * *

ANNEX

Constituted 5 August 1942 in the Army of the United States as Headquarters and Headquarters Battery, 1st Antiaircraft Artillery Automatic Weapons Group

Activated 17 August 1942 at Fort Bliss, Texas

Redesignated 31 December 1943 as Headquarters and Headquarters Battery, 1st Antiaircraft Artillery Group

Disbanded 13 February 1945 in France

Reconstituted 18 November 1952 in the Regular Army

* * *

1st AIR DEFENSE ARTILLERY

CAMPAIGN PARTICIPATION CREDIT

War of 1812
Canada

Indian Wars
Seminoles
Texas 1859

Mexican War
Palo Alto
Resaca de la Palma
Monterey
Vera Cruz
Cerro Gordo
Contreras
Churubusco
Chapultepec
Tamaulipas 1846
Vera Cruz 1847
Mexico 1847

Civil War
Sumter
Bull Run
Mississippi River
Peninsula
Manassas
Antietam
Fredericksburg
Chancellorsville
Gettysburg
Wilderness
Spotsylvania
Cold Harbor
Petersburg
Shenandoah
Appomattox
Florida 1861
Florida 1862
South Carolina 1862
South Carolina 1863
Virginia 1863
West Virginia 1863
Florida 1864
Louisiana 1864
Virginia 1864

World War II
American Theater, Streamer without inscription
Tunisia
Sicily
Rome-Arno
Rhineland

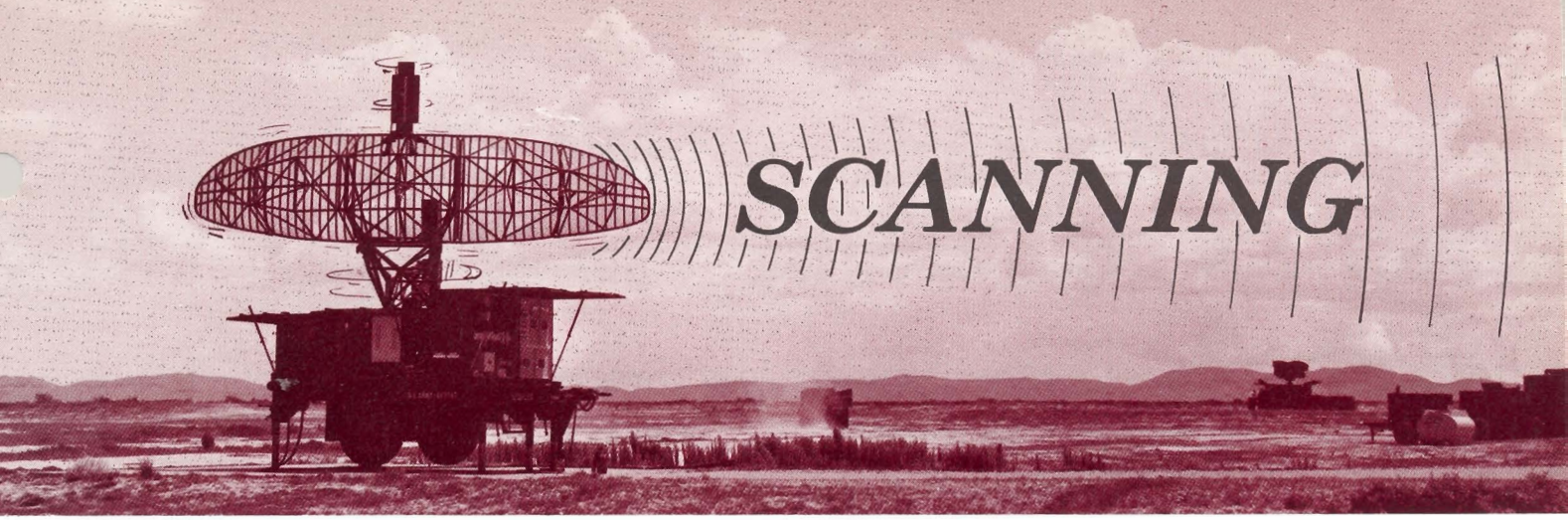
DECORATIONS

None

BY ORDER OF THE SECRETARY OF THE ARMY:

Verne L. Bowers

VERNE L. BOWERS
Major General, USA
The Adjutant General



HERCULES JOINT ARTEP/ASP

The 52d Air Defense Artillery is the only Nike Hercules battalion in the Continental United States. It is the Army's only mobile Nike Hercules battalion and the only nuclear capable unit at Fort Bliss. The unit has multiple missions in support of Strategic Army Forces Command and the Air Defense Center.

Having come to Fort Bliss from Homestead Air Force Base, Florida, last June, the battalion is currently stationed at McGregor Range. The batteries are preparing for a combined Army Training and Evaluation Program (ARTEP) and Annual Service Practice (ASP), the first time an ADA unit at Fort Bliss has combined the two.

ROLAND PRODUCTION

The Army has awarded the first contract for production of the US Roland, a foreign-developed air defense guided missile system, which will be built in the United States.

The US Army Missile Command contracted for low-rate production of missiles and fire units with Hughes Aircraft and Boeing Aerospace Companies. The two companies are associate prime contractors for the weapon system. The first contract is for about $60 million, with an option to buy more missiles, fire units, and related equipment at an additional total of about $180 million.

US Roland is a short-range, all-weather system that can operate as a self-contained unit from a tracked vehicle or from fixed ground emplacements. It will be used to protect troops, airfields, supply depots, and other targets against low-level air attacks, day or night, under all weather conditions.

The weapon system is being built in this country under license granted by Euromissile, the European industrial team that developed and builds Roland for the armed forces of France and West Germany. The American system, which is compatible with the European system, was tested by the Army for more than a year and based on its demonstrated performance was given the go-ahead for production. The American-built missile and the majority of the fire unit parts are interchangeable with the European-built Roland.

BOARD TESTS ATTACK HELICOPTER

The US Army Air Defense Board, Fort Bliss, Texas, recently conducted an evaluation of the effectiveness of an AH-1G attack helicopter using a turret-mounted, 20-mm gun in the air-to-air role.

The US Army Armament Research and Development Command (ARRADCOM), Dover New Jersey, is developing the helicopter air-to-air system in conjunction with civilian contractors. The Army does not have a proven system for attack helicopter crews to defend themselves against attack from an enemy helicopter.

The AH-1G, currently in service, is armed with an air-to-ground gun system. However, it is not configured to handle the variety of target motions encountered when attempting to engage another helicopter.

The AH-1G air-to-air system consists of a laser rangefinder, stabilized sight, sensors, digital com-

puter, and modified M197 20-mm cannon. This system is capable of computing fire solutions for air-to-air engagements that have a greater rate of change for range, changes in altitude, and rapid acceleration and deceleration of the target with respect to the firing helicopter.

During the evaluation, the AH-1G successfully engaged maneuvering drone helicopters and towed targets at varying ranges and speeds. So defense of our air crews looks encouraging.

NEW BASIC ELECTRONICS TRAINER

Basic electronics at the US Army Air Defense School will be taught under the same criterion-referenced format as digital technical training, beginning in early 1980 with validation of subject material. The current basic electronics program uses a CTI Philco Ford trainer that requires the instructor to use a myriad of separate electrical components to construct a simple circuit before the student can train with it. This system takes away from instruction time and requires constant supervision to account for the many electrical components and to insure proper operation of the circuit. The new basic electronics program will use a desk top, state-of-the-art, NIDA 130 trainer designed specifically for hands-on, performance-oriented training. The trainer provides the latest in electronics technology, using preconstructed circuit cards and built-in fault switches, and eliminates the need for circuit construction by the instructor, thus it allows more learning time for the student. The new trainer, used in conjunction with the standard oscilloscope and multimeter, will greatly increase the student's understanding of basic electronics and acquisition of hands-on skills relevant to his MOS.

NEW ADA WEAPON SYSTEMS

What about the new weapon systems? Will they offer new opportunities to the air defender? These new systems will be fielded in the FY 83-86 time frame and the personnel to man them must come from currently fielded units and recruitment. Obviously, the section, squad, and platoon NCOs must come from the experienced personnel now working in Herc, Hawk, C/V, and Redeye. These key personnel will be challenged with learning a new weapon system and demonstrating its operation, effectiveness, and employment. Personnel will be trained in the new systems by classroom work, extension training, and some OJT. Soldiers currently manning the Herc and Hawk systems can expect to have the opportunity to become a part of the Patriot system. Chaparral-trained soldiers can expect to be working with Roland systems in Europe and improved Chaparral systems worldwide. Vulcan personnel will man DIVAD Gun systems in both CONUS and Europe. Redeye personnel will field Stinger systems and be trained by new equipment training (NET) teams. As you can imagine, there will be a significant requirement for personnel to work as training cadre for all these new systems. Training recruits to fill key roles in operating them will require many dedicated NCOs.

The future role — in fact, the future of air defense — will be squarely in the hands of the technically qualified, highly skilled, first-line supervisors for these systems. There are no dead-end jobs. The Air Defense School is looking right now for good people to work in training development and as cadre for the new weapon systems. The future of air defenders has never been more diverse or brighter.

CORPS ADA

After its recent activation as an XVIII Airborne Corps unit, the 3d Battalion, 68th ADA, is about ready to begin serving the Corps. "All our troops have arrived and we are completely organized," said CPT Lafayette Trice, adjutant of the battalion.

The unit was formerly stationed at Homestead AFB, Florida, as a subordinate unit of the 31st Air Defense Artillery Brigade. A realinement of air defense assets in the Continental United States resulted in the battalion's relocation to Fort Bragg, where it will fulfill general support requirements for the XVIII Airborne Corps. The unit's chief item of equipment is the Improved Hawk system that has seen five generations of sophisticated improvements.

Most of the equipment was sent to Fort Bliss for the latest improvements, but now it is in the hands of the troops and the battalion has truly up-to-date equipment for training.

"As our equipment came in from Fort Bliss, we put it together and conducted system checks im-

mediately," said Captain Trice. "The manufacturer has representatives here at Fort Bragg to work with the soldiers and the equipment."

Members of the battalion who are assigned as missile crewmen travel to Fort Bliss, Texas, periodically to work with actual missiles. While at Fort Bragg, however, missilemen practice on electronic simulators that allow maximum realistic training.

The 3/68th has been continuously preparing for its general support mission. New training programs will soon be put into effect. They will emphasize mission, mobility, support, and maintenance during an 8-week training cycle.

So far, members of the air defense battalion have been adjusting well to their new environment. It was a bit chaotic for the local housing authorities at first but, little by little, the air defense soldiers and their families were assigned housing and moved in. For many of the junior members of the battalion, duty at Fort Bragg is their first real exposure to the Army because all of their previous time was spent on an Air Force base.

ADA IN BUDGET REQUEST

An FY 1980 Army Research Development, Testing, and Evaluation procurement budget request, which was submitted to Congress recently, includes nearly $200 million for Air Defense Artillery systems and equipment. The document mentions Chaparral, Improved Hawk, US Roland, Patriot, and Stinger, specifically.

ROLAND DEMONSTRATION

Operation of US Roland turret and tracking equipment is described by Boeing's William Rushing to Major General John B. Oblinger, center, Commandant of the Air Defense School, and Colonel Russell W. Parker, Roland System Manager for the Training and Doctrine Command, during a recent visit to Boeing's Roland training and production facilities in Seattle. This fire unit, which took part in firing tests at White Sands Missile Range, New Mexico, is used by Boeing to train Army key personnel and instructors who will develop training plans and procedures as the Roland air defense system becomes operational.

ENLISTED CAREER NEWS

E4 PROMOTIONS

Limits on the number of E4s to be promoted have been raised. Now, 70 percent of the total number of E3s and E4s assigned to a unit may be in grade E4, including those in the waiver zone.

Example: 50 E3s and 60 E4s are assigned to a command. To find the total number of promotions to E4 allowed, the number of E3s and E4s assigned would be added for a total of 110. This figure would be multipled by 70 percent to get the maximum number of E4s authorized in the command (110 x .70 = 77). The number of E4s already in the command would then be subtracted (77 — 60 = 17). In this case, 17 E3s, including those with time in service waivers, could be promoted to E4. If, however, the command finds it already has more E4s than authorized, eligible E3s with 18 months time in grade may still be promoted.

Current waiver rules remain unchanged. In addition, promotions to E4 guaranteed in enlistment contracts through the stripes for skills program are exempt from the restriction.

PROMOTION WORKSHEET

Soldiers who are competing for promotion to SGT/SP5 and SSG/SP6 under the Army's semicentralized promotion system will notice that a Revised Promotion Point Worksheet (DA Form 3355) is being used to determine their promotion points.

The use of the revised worksheet began on 1 October 1979 for soldiers who were competing for promotion to SGT/SP5 and also for the October recomputation for CPL/SP4s who were on the standing lists for promotion to SGT/SP5.

Soldiers who were competing for promotion to SSG/SP6 began using the revised worksheet on 1 November 1979. The worksheet was also used in the November recomputation for SGT/SP5s who were on the standing lists for promotion to SSG/SP6.

The worksheet is a standardized scoring form and the scores from it are used by the Department of the Army to determine the promotion point cut-off scores that MILPERCEN announces monthly.

Standardized promotion point worksheets have been used in the semicentralized promotion system since August 1968. The revised worksheet now being used is the second major revision of the sheet in the past 3 years.

The revised worksheet retains the 1,000-point ceiling, although point categories have been modified and the points redistributed. It has been designed to give the soldiers who are competing for promotion a way to influence their promotion chances. Specific emphasis in the new worksheet has been given to the areas where soldiers can increase their points through individual effort and initiative.

The major changes on the new worksheet are:

☐ SQT. Points will be based on the "GO" raw score shown on the individual soldier report. This permits the more timely use of the test results. The adjustment of points, however, will take place only during the normal recomputation periods.

☐ NCOES Courses. CPL/SP4s who successfully complete the Primary Noncommissioned Officer Course (PNCOC), the Primary Leadership Course (PLC), or the Primary Technical Course (PTC) will be awarded 30 points. SGT/SP5s will be awarded 30 points for completing the Basic Noncommissioned Officer Course (BNCOC), the PLC, or the Basic Technical Course (BTC) successfully. The new worksheet also recognizes completion of on-the-job experience by giving a soldier 15 points for gaining certification at the time of his initial board appearance and 1 point per month thereafter until he accrues a total of 30 points.

☐ Awards and Decorations. The value of points for peacetime awards and decorations has been increased. Additional badges have been included for points, and Certificates of Achievement now qualify for the award of points.

☐ Correspondence Subcourses. The point value has been tripled to 1 promotion point for each 5 credit hours completed satisfactorily.

☐ High School. A soldier who has a high school diploma or a GED equivalency certificate will be credited 75 points.

Although the use of the new worksheet began in October 1979, promotions based on the new scores did not begin until January 1980.

— Infantry

TRAVEL TO TRAVIS AFB

Soldiers going overseas from Travis Air Force Base, California, should plan their travel to Travis carefully.

Some soldiers traveling by air to San Francisco International Airport are not allowing enough travel time from there to Travis. Due to these late arrivals, soldiers sometimes wind up paying for a taxi or limousine at rates well above what they would pay for bus service to Travis. The air base is located 66 miles from San Francisco, and bus schedules are subject to change.

Soldiers should plan to arrive at San Francisco at least 6 hours before their scheduled port call at Travis. This will allow them enough time to travel by bus. The cost of the bus service is about $6.50. Officials advise soldiers not to hire a taxi or limousine to Travis without a firm agreement on the fare and the off-load point.

COUNSELING STATEMENT

An increasing number of career soldiers have been refusing to take those actions to meet the length-of-service requirements that will make them eligible for oversea assignments. To be eligible for an oversea assignment, a soldier must have at least 12 months remaining in the service after he arrives at his oversea unit. A career soldier who has less than 12 months of service remaining in his enlistment has the option of extending or reenlisting to meet the minimum time-in-service requirement. If he does not extend or reenlist, he must sign a counseling statement before he is deleted from orders.

Many soldiers apparently do not understand all of the consequences involved when they sign counseling statements. When they sign counseling statements, they are placed in the following status:

☐ Nonpromotable.

☐ Prohibited from reenlisting for at least 93 days following separation.

☐ Must have a DA-approved waiver to reenlist. If a waiver is approved, the soldier will lose at least two grades from the one he held at the time of his discharge.

Requests to withdraw counseling statements prior to ETS can be approved only by MILPERCEN for soldiers serving in CONUS and by the major oversea commander for soldiers serving overseas.

Recent recommended changes to AR 601-280 have been approved and will be put into effect with a future change to the regulation. The counseling statement will be standardized and will become a DA form.

Additionally, it will be the unit commander's responsibility to counsel a soldier initially on his options and on the effects his signing a counseling statement might have. This responsibility currently rests with the personnel officers. This change is intended to make certain that the soldier will know his options and will also know the consequences of signing a counseling statement.

NOTE: Check the January 1980 Air Defense Bulletin for information on exemptions from SQT.

BARS to STARS

OPMD UPDATE

OER APPEALS

The Department of the Army has published a revision of AR 623-105, Personnel Evaluation Reports-Officer Evaluation Reporting System, dated June 1979. This new regulation supersedes AR 623-105, 11 June 1976.

Chapter 9 of the new AR outlines the policies and procedures to be followed in the event an officer feels that an appeal to his Officer Evaluation Report (OER) is warranted. Because of the importance of the OER to an officer's career, we are publishing the following information dealing with the appeals system.

Most OERs are completed carefully and are included permanently in the Military Personnel File. On occasion, however, an officer might receive an OER that he feels is unfair, unjust, or inaccurate. Fortunately, the Army has procedures that permit officers to appeal to the proper authorities for removal of these OERs from their official files. Answers to some of those questions most frequently asked by officers in the field, are provided to help explain some of the less familiar aspects of the OER appeals system.

An appeal is a written document prepared by a rated officer who is attempting to delete all or a part of one of his OERs. Detailed policies and procedures governing OER appeals are outlined in chapter 9 of AR 623-105. Appeal procedures are designed to preclude damage to an officer's career by reports that are inaccurate, unfair, or prejudicial. Department of the Army policy is to accept an administratively correct OER as representing the considered judgment of the rating officials at the time of preparation. The rated officer must produce conclusive evidence of inaccuracy or injustice if an appeal is to be successful.

Types of Appeals

The two bases for an appeal are administrative error and substantive argument.

Administrative. Administrative error is generally determined by a careful review of the report in relation to the facts at the time of preparation and the administrative requirements of AR 623-105. Types of administrative errors include but are not limited to incorrect description of duties, improper rating periods, incorrect rating schemes, and inaccurate personal data recorded on the report form. As an example, an officer may prove that the entries in the OER's "period covered" block are in error. He produces evidence in the form of official orders or morning report entries to show for example, that the rating period was 148 duty days rather than 159 duty days. With this evidence, the report will be corrected, but it will not be voided. On the other hand, if he can prove that the officer whose name appears in the "authentication block" was not the proper rater, that part of the report dealing with the rating officer's evaluation will be deleted. What is more, an attempt would be made to obtain a valid evaluation from the correct rating official. MILPERCEN will make the final determination on most claims of administrative error.

Substantive. An appeal based on substantive argument is in essence the rated officer's claim of judgment error or unfairness on the part of a rating official. In the appeal, the rated officer must prove that the evaluation given by the rating official was inaccurate, unfair, biased, or not in accord with the intent of AR 623-105. Since determination of such a claim is a judgment evaluation, the final decision on substantive appeals is made by the DA Special Review Board. This board will examine the appellant's argument in detail and then decide whether the report or portions of it should be invalidated.

Preparatory Actions

General preparatory actions are helpful if an appeal is to be successful. After obtaining a copy of

the evaluation report in question and reviewing AR 623-105 and DA Pamphlet 1-10, the officer should consider phoning or visiting his career management division to determine whether an appeal is advisable. While this is not a compulsory step in the appeal procedure, the career management division can assist by offering helpful hints or, if requested, administratively reviewing the rated officer's initial draft of an appeal.

Submission of Appeals

The success of an appeal depends on the argument and evidence presented by the rated officer. The appeal has no prescribed format, required length, or mandatory inclosures. However, the use of a letter format with cross-references to inclosures containing the supporting evidence is recommended. The evidence may consist of statements, letters, reports, documents, or photos.

When completed, the appeal should be submitted directly by the rated officer to MILPERCEN, ATTN: DAPC-PSR-EA, 200 Stoval Street, Alexandria, Virginia 22332.

Disposition of Appeals

MILPERCEN notifies all appellants of the outcome of substantive appeals. If the evidence and the argument fail to support a claim of inaccuracy or injustice, the formal appeal becomes a permanent part of an officer's Official Military Personnel File.

Questions and Answers on OER Appeals

Q. If I intend to solicit statements to support my OER appeal, where can I get current mailing addresses of officials who were in my old unit?

A. Your best prospect is to write or call the Active Army Locator. Address your correspondence to: Commander, United States Army, Officer Records Center, Fort Benjamin Harrison, Indiana 46247, or call commercial 317-542-4211/2/3 or AUTOVON 699-4211/2/3. If you are certain that the individual(s) in question have since retired or separated, write to: HQDA, ATTN: DAAG-PSR, Room 5B064, Forrestal Bldg, 10th and Independence Ave, SW, Washington, DC 20314. (That office will not release address information pertaining to retired or separated personnel due to Privacy Act restrictions but will forward your correspondence to the individual's last known mailing address.)

Q. Where can I obtain copies of my evaluation reports?

A. You may appear in person at MILPERCEN's Records Services Branch, Room 5S43, Hoffman II, 200 Stoval Street, Alexandria, Virginia. If you are unable to appear in person, you may request a free copy of the report by mail (ATTN: DAPC-PSR-S, 200 Stoval Street, Alexandria, Virginia 22332) provided you cite the reason as an appeal action and include the dates of the reporting period in question. You also can deputize another person to obtain a copy of the report by providing written authorization. Please remember, though, that current procedures prohibit any members of MILPERCEN from acting as your duly authorized agent.

Q. Where can I get records to verify dates?

A. Start with your Field 201 File for orders and other documents or contact former organization MILPOs to determine whether records are still retained. You may request morning report extracts from the US Army Reserve Components Personnel and Administration Center, 9700 Page Blvd, St. Louis, Missouri 63132. When requesting extracts, identify all dates in question as precisely as possible.

Q. Am I obliged to contact former rating officials when preparing my appeal?

A. No. The appeal is yours to construct in your own way. You may contact whomever you choose and you may avoid whomever you choose. You should be prepared to support your argument. How you do it is up to you.

TIME IN SERVICE TO CAPTAIN

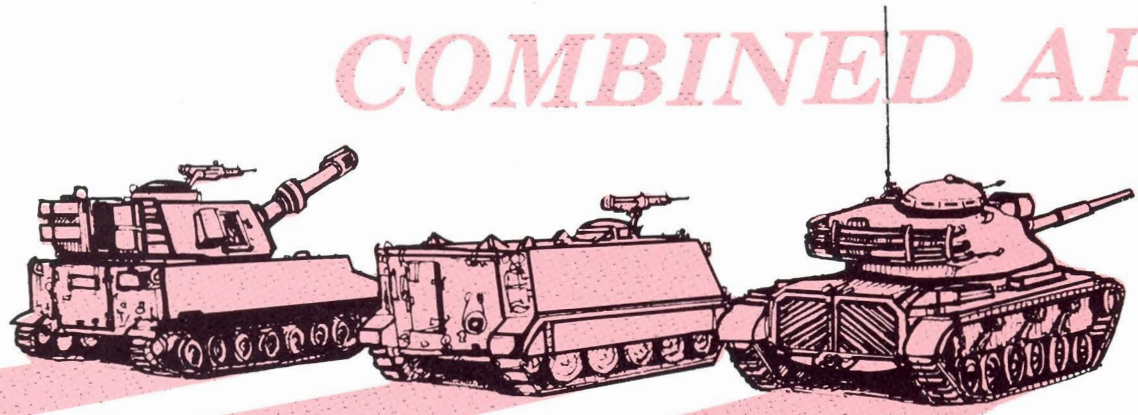
Beginning 1 October 1979, the commissioned service required for promotion to captain was reduced. The reduction will be accomplished gradually over the next year with the required commissioned service becoming 4 years on 1 October 1980. Four and one-half years are now required.

This decision was made to help relieve a shortage of approximately 5,000 captains in the Army. The change will produce approximately 2,500 additional promotions to captain during the next year.

Because of the accelerated promotion schedule, officers on the current lists will be promoted to captain before the end of FY 80. A schedule showing the phased implementation and the dates on which first lieutenants can expect to be promoted will be published in the near future.

Another promotion board is recommending additional officers for promotion to captain during the current fiscal year. The zone of consideration and other administrative information, which we do not have space to include here, were announced in DA message 271730Z September 1979.

COMBINED ARMS CORNER



BTMS

Selected units of the 2d Armored Division recently began a 5-month cycle of instruction based on the Training and Doctrine Command (TRADOC) Battalion Training Management System (BTMS). The BTMS is a coordinated effort to provide troop leaders in FORSCOM what TRADOC considers the most effective, up-to-date methods of conducting performance-oriented training. The system is based on five seminars:

☐ The executive seminar: Given only once, it's a 2- to 4-hour session with the brigade and division staff to provide them with the background needed to support BTMS.

☐ The second: A training management workshop, it lasts 3 to 4 days, focusing on the battalion commander, S3, and company commanders and how they plan training.

☐ The third: A 3-day training supervisors' workshop, it involves the command sergeant major and first sergeants, emphasizing their specific roles with other noncommissioned officers.

☐ Fourth: The platoon trainers' workshop, lasting 3 days, with the platoon leaders and platoon sergeants.

☐ Fifth: A 3-day trainers' workshop is conducted for squad leaders and section chiefs. Where the training supervisors' workshop focuses on collective training (such as the Army Training and Evaluation Program), this one centers on individual tasks.

LOG COMMAND COURSE

The Army is developing a combat service support (CSS) precommand course for colonels and lieutenant colonels selected to command logistics battalions, groups, and division support commands. Officers will complete the four-phase course just before they assume their commands.

The first phase will consist of an individual home study package. It will contain information on the mission of the command and training management, along with a tactical update.

The second phase will consist of formal training at the Army Logistics Center (LOGC), Fort Lee, Virginia, or one of the basic branch schools. Those tapped for division support commands, separate support battalions, and general support group commands will attend the LOGC course. Those selected to command functional logistics units will attend the branch school associated with that function. This 2-week phase will stress "how to support," "how to train," and the "how to" of organizational logistics.

The third phase, to be taught at Fort Leavenworth, Kansas, will be a 1-week command development course emphasizing personnel and legal aspects of command.

The fourth phase, also conducted for 1 week at Fort Leavenworth, will cover tactical doctrine and principles and will include a summary of the other course elements. It will also include a logistics training program with computer-assisted instruction.

The first CSS precommand course is scheduled to begin in July 1980.

— Army Logistician

UHF-AM RADIOS IN TANKS

At the request of the US Army Armor Center, the US Army Combat Developments Experimentation Command (USACDEC) recently conducted an experiment to determine the feasibility of using UHF-AM radios in the tanks of tank companies and platoons. This idea stemmed from the fact that the use of UHF-AM radios would make more frequencies

available that would be directly compatible with those of attack helicopters. To provide the type of information sought by the Armor Center, USACDEC designed an experiment that focused on determining the line-of-sight and range limitations of VHF-FM (AN/VRC-46) and UHF-AM (AN/VRS-24) radios when used in ground tactical nets in various types of terrain.

Courses of travel for the experiment were laid out over four types of terrain: flat/open, undulating, rolling, and precipitous. Three M60A1 tanks were VHF-FM configured and three were equipped with UHF-AM radios.

For each trial, one UHF and one VHF tank proceeded from a start point along a prescribed course and, at preselected transmission points, exchanged transmissions with two comparably equipped tanks that had remained stationary at the start point. Upon completion of the course, the moving tanks became the stationary vehicles and the other two proceeded through the course in the same fashion.

Throughout the experiment, calibration and performance checks were made in accordance with the radio technical specifications to insure that established tolerances were maintained.

To assure consistency, transmitted messages were taped alphanumeric messages that had been recorded by a professional radio announcer using standard phonetics. Each was approximately 1 minute in length and included a message identifier, a five-line message with four characters per line, and a message termination. One retransmission per message was permitted at the request of the receiving vehicle.

A message score (legibility) for each transmission was computed on the basis of the percentage of characters correctly transcribed at the receiving radio.

The experiment results, forwarded to the Armor School for analysis and evaluation, showed that the message scores for the UHF-AM radio were generally lower than for the VHF-FM radio over all terrain types and under both day and night conditions. Similarly, UHF communications were more adversely affected by terrain and range.

The experiment was executed in less than 2 weeks by a small team at a direct cost of approximately $1,000, proving that valuable informational input to a materiel or conceptual acquisition/adoption decision process can be gained without great expenditure of time and money.

— Field Artillery Journal

T-22 ARTILLERY MISSILE

Vought Corporation, aerospace subsidiary of the LTV Corporation, has successfully launched its first T-22 missile, a Lance-size missile featuring a solid-propellant rocket motor and an innovative laser gyro, guidance system.

The launch came from a standard lightweight launcher built for the Lance battlefield missile system. It was the first firing in the simplified inertial guidance demonstration (SIG-D) flight test program for which the US Army Missile Command is program manager and systems integrator. Purpose of the SIG-D program is to demonstrate guidance, control, and propulsion innovations for ground-launched missiles.

The launch became the first test flight of a ring laser gyro on a rocket artillery missile and the first in-flight test of the 10-foot long, 22-inch diameter, high-performance solid propellant rocket motor.

Variations of the SIG-D could play an important part in the assault breaker tests sponsored by the Department of Defense and could be developed for the Army's Corps Support Weapon System as a Lance replacement.

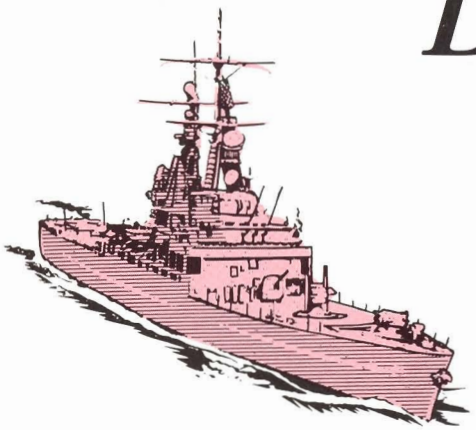
The Honeywell H-700 ring laser gyro, digital, strapdown, inertial guidance and control system is provided to the Army for the SIG-D tests under a separate contract. It features a ring laser gyro and Q-Flex accelerometer triad and a digital computer that processes the inertial measurements and provides computations for navigation, autopilot, and guidance functions.

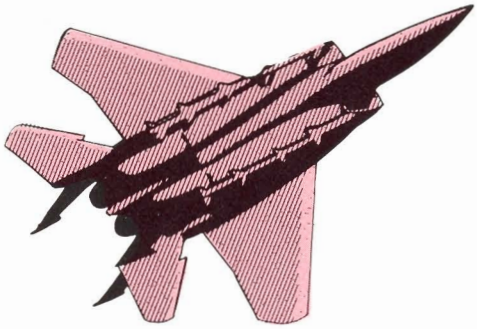
The Vought T-22 is the same size as the Lance. Externally, it looks similar to Lance except that it has four fixed cruciform wings. The T-22 uses rear surface elevons for steering instead of the thrust vector control valves in the throttled liquid fuel engine of Lance. The high performance of the T-22 solid-propulsion motor offers substantial cost savings over the current Lance propulsion system, according to Vought engineers.

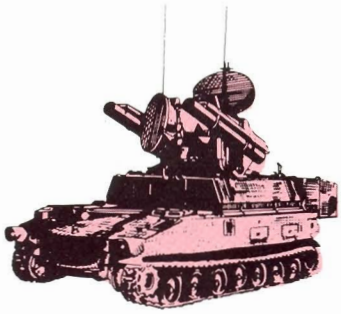
Strapdown inertial navigation results in a more compact system than current inertial platform systems. It does not require the space-consuming gimbals and slip rings required with conventional platforms. Its inertial components are body mounted or "strapped down" to the missile airframe. The H-700 also eliminates the need for body rate gyros and accelerometer for the autopilot.

For the SIG-D tests, Vought and its subcontractors provided the T-22 airframe design and flight test hardware, control systems, low-cost solid-propulsion rocket motors, and instrumentation.

DEVELOPMENTS







SATELLITE SIGNALS TO GUIDE MISSILES

A weapon guidance system is under development that uses radio signals from satellites orbiting 11,000 miles above the earth to guide tactical missiles accurately to land and sea targets. Hughes Aircraft Company is doing the work for the US Air Force Armament Laboratory, Eglin Air Force Base, Florida.

The on-board system will determine a missile's precise latitude, longitude, and altitude while in flight. This calculation is accomplished within billionths of a second, the time it takes signals from four satellites to reach the weapon.

Position information is then used to periodically correct the missile's inertial navigation computation, enabling the weapon to be delivered to its programed target position. The missile could be fired several hundred miles away from the target with the launching aircraft safely beyond enemy defenses. The first series of flight tests of a prototype version of this global positioning system (GPS) of guidance began recently at the Air Force Armament Laboratory, Eglin Air Force Base, Florida.

The technique under study has a number of potential advantages over other guidance methods in use or being considered for medium-range tactical weapons such as air- or sea-launched cruise missiles, antiship missiles, or glide bombs. Among the more important attributes derived from using GPS are a high degree of flexibility and simplicity, and stealth (or the ability to avoid detection).

Key to the GPS guidance concept is the Navstar Global Positioning System now being developed for the US Air Force. This system contemplates a network of 24 orbiting satellites in place by 1987 that will provide 24-hour worldwide navigational data. Using signals from these, a GPS-guided tactical missile could be launched anytime, anywhere, with the same high accuracy. In addition to its nighttime capability, the system also would function in any kind of weather and over any distance the weapon can operate.

The system's flexibility comes in part from its absence of dependence on ground transmitters or controllers, or on staging area facilities to generate flight path guidance data. Some alternatives, such as the correlation types of weapon guidance, are keyed to terrain surface features and, therefore, are of limited use over water or featureless ground such as deserts. If the mission situation called for a high-altitude approach (for example, supersonic delivery), GPS is essentially without altitude limitations, while the correlation methods tend to lose accuracy as the altitude is increased. Simplicity of GPS guidance is enhanced by the Navstar System's capability to service an unlimited number of users simultaneously. Because GPS is dependent only on the satellite signals once it is launched, it inherently is suited for standoff, launch-and-leave tactics, with the launching aircraft able to withdraw as soon as the missile is fired.

The spread-spectrum, GPS waveform signal transmitted from the satellites also provides the guidance system with a high level of built-in resistance to electronic countermeasures, so it considerably reduces the need for supporting anticountermeasure equipment. Because it is passive, depending only on receiving satellite signals, the GPS guided missile does not broadcast its arrival as would one using radar. Its chances to sneak up unobserved to a target are further boosted by its ability to operate at low altitudes using prestored terrain altitude and knowledge of its own

altitude. GPS guidance alone is accurate enough for terminal guidance of heavy munitions to target-rich areas. But it is being considered primarily for midcourse guidance applications — taking the missile to within a short distance of a particular target — with some other technique being employed for terminal guidance.

The GPS system is an integrated design, with the missile equipment dependent on having key satellite tracking data handed over from the launching aircraft's more elaborate GPS system just prior to launch. This greatly simplifies the tracking and receiving tasks required of the missile's system and, therefore, considerably lowers its cost.

In another synergistic relationship, the system's ability to correct the missile's navigation computations enables a relatively low-cost inertial guidance system to be used. The pod-mounted system incorporates a receiver built by Magnavox Government and Industrial Electronics Company and the AN/UYK-40 computer developed by Hughes Ground Systems Group.

For the Air Force Armament Laboratory test flights, the aircraft GPS system will be carried along with the tactical missile GPS guidance system in a modified centerline fuel tank pod. This unit already has passed environmental testing and has demonstrated that it can acquire and track satellite signals under laboratory conditions.

The pod will be carried by an Air Force F-4 fighter during the Eglin tests, and its flight path will be tracked by precise photo-theodolites. Triangulation of sighting angles of these transit-like cameras will give the exact location of the aircraft. This will be compared with the longitude, latitude, and altitude positions computed by the tactical GPS guidance system, which will be tracking signals from the Navstar satellites now operating.

Flight tests under the Air Force contract are scheduled to continue through October. The GPS guidance program is under the direction of the Air-to-Surface Weapons Midcourse Guidance Branch of the Air Force Armament Laboratory, Eglin AFB, Florida.

NEW FLIGHT SIMULATOR

A new air combat trainer (AN/APG-65) that uses computer-generated images to create a wrap-around view of sky and earth, as well as flying aircraft and rocketing missiles, will be produced by Hughes Aircraft Company.

The combat simulator will be used to train pilots of the US Navy and Marine Corps' F/A-18 Hornet strike fighter. It is designed to upgrade pilot proficiency and coordination in the use of the Hornet's weapons in realistic combat situations.

The system includes two 40-foot domes, each surrounding a simulated F/A-18 cockpit, on which computer-generated images will be projected. Pilots seated in the cockpits will see a visual simulation of sky and earth, maneuvering aircraft (friend, foe, or combination), missiles, and gunfire. These images move in response to both trainees' actions as they "fly" the simulators, giving them the sensation of being airborne in a dynamic combat situation.

Under an $18.7-million contract with the Naval Training Equipment Center in Orlando, Florida, Hughes' Support Systems Organization will produce and deliver the first of these systems, called a weapons tactics trainer. The system will be ready for training in October 1982.

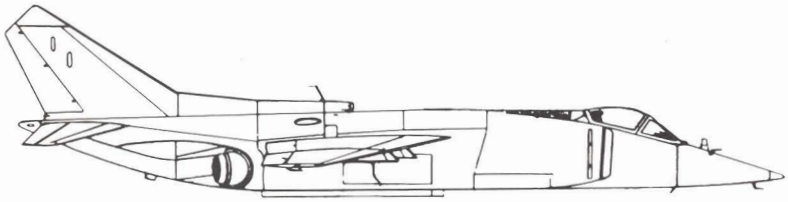
Each trainer cockpit is a full simulation of F/A-18 aircraft controls, displays, and associated pilot support elements. The trainer will also simulate for the pilot the sensations of centrifugal force, including optical grayout and blackout to simulate the physical load factors of air combat. In effect, a pilot can experience the sights, sounds, and feel of flying in combat.

The instructor, from his console, can formulate the tactical problem, monitor the training mission, and evaluate the pilot's performance. He can directly control an air target or assign the task to the computer, which will have total knowledge of the tactical situation and provide a realistic adversary.

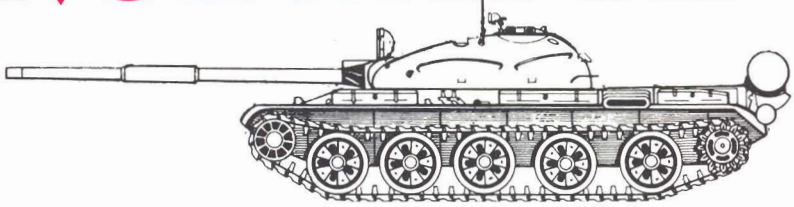
The trainee will experience a full simulation of F/A-18 aerodynamic and control characteristics in either normal or degraded flight operations. Pilots can be trained in air-to-air tactics, instrument procedures, airframe system and engine control, and normal and emergency procedures.

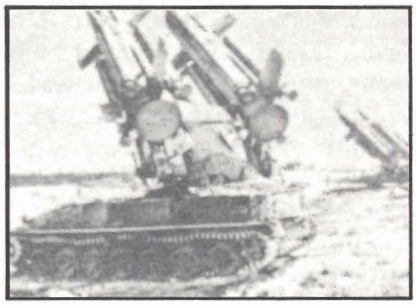
Target projectors in the domes create aircraft images with the appropriate resolution and size to simulate targets over a wide dynamic range. To complete the visual realism, high-intensity light valve projectors are used to create dynamic earth and sky scenes, and missile projectors create the illusion of outgoing missiles.

With the weapons tactics trainer, pilots can receive realistic and comprehensive combat training without actual flight operations.



INTELLIGENCEWATCH





SA-4/GANEF

The Army of the German Democratic Republic (East Germany) is equipped with the Soviet antiaircraft missile system, SA-4/GANEF. When deployed by the Soviets, this system is normally at military district level (front) and also at Army level as in antiaircraft brigades. Each AA missile brigade is divided into three battalions with three firing batteries each. An SA-4/GANEF battery consists of three launch vehicles and a fire control radar vehicle, PAT HAND. A similar vehicle, which carries the launcher and PAT HAND, is used for the target acquisition radar LONG TRACK.

The GANEF system is considered to be effective to an altitude of approximately 20,000 meters and to a range of about 55,000 meters.

— Soldat und Technik

F-4Es FOR EGYPT

As part of a package deal between the US and Egypt under terms of the Mideast peace agreement, the first of 35 F-4E Phantom 11s destined for the Egyptian Air Force have arrived in Cairo. The planes were ferried to Cairo by USAF Tactical Air Command and Egyptian crews.

During the 13-hour, 14-minute flight between Homestead AFB, Florida, and Cairo, the F-4Es were refueled by SAC tankers 9 times. The Phantoms were taken from the USAF's active inventory. Air Force officials stated that the F-4s and others in active service are to be replaced by F-15 Eagles and F-16s.

SOVIET SA-11

The Soviet air defense system SA-11 is under development, according to Western experts. It is an antiaircraft missile system with a range of 20 km at altitudes from 25 to 15,000 meters. The missile is said to have a speed of 1,100 kmph and acceleration up to 23g. The system is radar controlled and is launched from full-tracked vehicles with launchers for three or four missiles. Operational concept is four SA-11 launchers combined with one SA-6/GAINFUL system.

— Soldat und Technik

ITALY BANS FIREARMS

If you have orders to Italy, don't plan on bringing your personal firearms.

Privately-owned firearms cannot be shipped to Italy by military or civilian personnel or their dependents, according to a joint military services ban on firearms shipment.

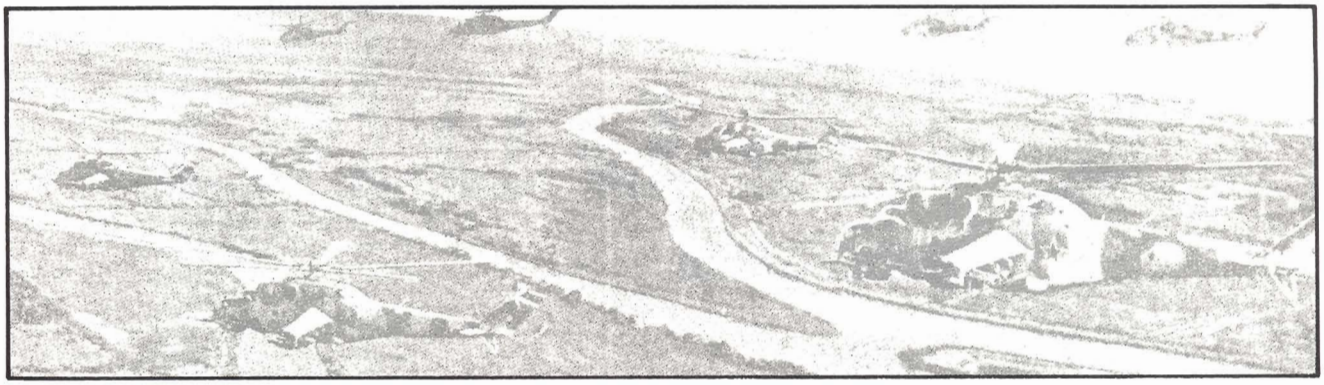
Police enforcement agencies in the Southern European Task Force area formerly registered firearms after they were imported into the country by people under military orders. The stricter enforcement of a 1975 law concerning importation of firearms now prohibits this activity.

Although American officials are negotiating to establish workable procedures to comply with the Italian law, there are no means presently available to legally import firearms to Italy.

Heavy fines and stiff prison sentences face violators of Italy's firearms law. Anyone with firearms in transit should contact the provost marshal's office as soon as he or she arrives in the country.

The Southern European Task Force Provost Marshall warned that firearms are subject to confiscation and destruction if they are imported illegally and are unregistered.

SOVIET HELICOPTER PROLIFERATION



It is estimated that there are currently more than 300 Soviet combat helicopters of the HIND class stationed in the area of the German Democratic Republic (GDR). The HIND is armed with 4 rocket pods, 32 unguided, 57-mm air-to-ground missiles, and 4 launch rails for antitank missiles.

The nose section of the helicopter contains one .50 caliber machinegun (HIND A) or a 4-barrel rotating (Gatling) gun (HIND D). Terrain, weather, and enemy air defense dictate operating altitudes. However, antitank missiles are usually fired when the craft is operating at tree top level. Combat formations may be carried out in groups of two, three, or six helicopters.

— Soldat und Technik

SOVIET NAVIGATIONAL SATELLITE

For the first time a full-size navigational satellite was displayed by the Soviets at the Paris Aviation Show. The satellite is intended for the support of the extensive Soviet fleet of "fishing trawlers." The satellite has a diameter of approximately 2 meters. For stabilization in space, the gravity of the earth is used (A). The outrigger (B) is used to measure the magnetic field of the earth. The first prototype of this navigational satellite was launched in March 1978 as Cosmos 1000 and reached an almost spherical orbit at an altitude of approximately 1,000 km and 83° inclination. The satellite works in the UHF range. The position of the user is determined by a computer on the ship through distance ship/satellite and directional parameter ship/satellite data. It can be assumed that a similar system will be installed for the Soviet Navy for position determination.

— Soldat und Technik

FIRST STRIKE, *by Douglas Terman. Charles Scribner's Sons, New York, 1979. 368 pages, $10.95.*

Reviewed by Captain Douglas E. Warren

First Strike is one of several recent novels which discusses possible future events in the United States. The novel plays on the isolationist tendencies of the American people, the feeling for detente, the vulnerability of some overly ambitious politicians, and the ease with which public opinion can be manipulated. The plot is carefully developed and convincing.

The novel begins by describing an underground factory in Siberia where an exact duplicate of a US Navy nuclear warhead has been produced. The story continues by telling that the Soviets have developed a supersophisticated computer system that measures the odds of a World War III victory. According to the author, all this is going on while the US is lulled into unawareness through detente.

While Soviet computer analysis tells the Soviets they have a good chance of winning a war with acceptable damage, conservatives within the Soviet Union still remain doubtful. They develop a plan that will virtually guarantee a successful first strike with virtually no damage to them in return.

The plot centers around a Senator from New York named Welsh. Welsh's ambitions greatly exceed his abilities. He has made his reputation by making New York City a virtual ward of the Federal Government. Welsh decides that he wants the presidency, but he realizes that he needs an issue to propel him into national prominence. He decides to use unilateral disarmament, beginning with the US, as a prime issue. The realities of using such an issue considering current public opinion on the subject soon discourages him. The senator is just about to give up the quest when the Soviets, in the guise of a European organization favoring disarmament, make contact with him.

The Soviets present Welsh with only part of their plan. Through political coups ("masterminded" by Welsh) in Cuba and Panama, he believes he can be led into national prominence and eventually the presidency. The senator is now ready to begin a program moving toward US disarmament. What the Soviets do not tell the senator is that they also plan to turn American opinion against nuclear weapons by staging a nuclear accident.

Pursuing his plot, Welsh orders his pilot, Brian Loss, to fly two mysterious visitors into Mexico. Loss is forced to crash land and finds himself in a hospital charged with the theft of the plane and implicated in a murder. Confused and betrayed, Loss escapes and begins to investigate the circumstances surrounding his betrayal by Welsh. He becomes more and more deeply involved in espionage and intrigue as he does so. Loss eventually becomes aware of the entire plot and begins a tense race to stop what may be the beginning of the end for the United States.

First Strike is an excellent novel that may well be a frightening blueprint for the future. Anyone with even the slightest trace of concern over recent events should read *First Strike*. He may find his concern justified.

B-26 MARAUDER AT WAR, *by Roger A. Freeman. Charles Scribner's Sons, New York, 1978. 192 pages, illustrated, $14.95.*

Another in the growing line of "at war" books, the *B-26 Marauder at War* traces the history of one of the most controversial combat aircraft ever produced

from the initial design to the demolition of many of the aircraft in Germany at the end of World War II.

Being a hot aircraft and most unforgiving to pilots' mistakes, the B-26 at first gained the reputation of a widow maker and flying coffin. Its early combat record was almost a complete disaster, but after the development of different tactics and improvements in the aircraft itself, the B-26 finished the war with the best combat record of any Allied bomber. Losses were less than 1 percent for the number of sorties flown. It is this theme that Roger Freeman centers upon throughout the book. He carefully explains how tactics were changed for medium bombers and how the aircraft was constantly improved to make it a better fighting machine.

Mr. Freeman looks at the B-26 as a machine, then treats the reader to an examination of the aircraft from the eyes and words of men who actually flew the Marauder. Missions flown are examined and tactics are defined. Of special interest are the different devices developed to allow the B-26 to bomb "blind" in the overcast skies of Europe.

There is a personal touch of both man and machines as everyone from bomb-group commanders to individual crewmen tells his story. Many B-26s were personalized with names like "Swamp Chicken," Flack Bait," and "Idiot's Delight," and they seemed to have a personality of their own. The story of these men and aircraft is told in an interesting and adventurous manner with a splendid narrative and magnificent collection of photographs.

Although the "at war" series is not intended to be a book of data and statistics, the author, nevertheless, does a good job of explaining the technical differences between different versions of the B-26 and how these affected the capabilities and performance of the aircraft.

Following in the footsteps of the previous titles in this series, the *B-26 Marauder at War* is an interesting and informative book that is sure to please the aviation enthusiast and the reader who likes war adventure.

INVASION NORTH AFRICA 1942, *by S. W. C. Pack. Charles Scribner's Sons, New York 1978. 112 pages, $12.95.*

Reviewed by SFC Robert R. Cordell

At first glance, Pack has provided us with an excellent photo album of the Allied invasion of North Africa in November 1942. And indeed, it is a beautiful collection of rare and unfamiliar pictures that show the many faces of war. These photographs, and the detailed maps and charts, portray fully this the first great Allied operation of World War II.

However, along with these photographs, Pack has painted a word picture that shows clearly all aspects of this joint American and British effort. Pack served in Washington during the planning for Operation Torch. The authenticity with which he writes is coupled with interest and imagination. The style of the British writer is evident: his message is clear, his story concise.

Within this story is interwoven a lesson manual for the planning of a three-pronged amphibious attack with air and naval gunfire support and extended lines of communication. The planning for every detail is explained well, including the diplomatic considerations. Not only has the spirit of final victory been shared, but also the problems of getting there and just how they were met and overcome. This, then, is a completion story, one of determination and perseverance bringing forth a successful close.

The reading of Pack's work will delight the professional soldier who seeks to learn history and also add to his technical knowledge. There is a wealth of information here that is applicable in any mission that requires detailed planning. But still, it is a book to enjoy.

MINIMUM DISCLOSURE, *by Juergen A. Heise. W. W. Norton & Co., New York, 1979. 221 pages, $10.95.*

Reviewed by
Lieutenant Colonel (Ret) Joseph R. Frankoski

Heise has produced a book bound to cause controversy within the military. He tries to explain how the Department of Defense (DOD) handles negative, newsworthy information that it has no legal right to withhold, and why.

The author has been a journalist and Special Assistant to the Assistant Secretary for Public Affairs in Health, Education, and Welfare, backed up by several degrees in journalism and a doctorate in public administration.

The policy of DOD is "Maximum disclosure with minimum delay." Heise refers to this policy throughout his book. He begins by using the My Lai Massacre as a case study in news suppression. Bad news is considered to include items such as cost overruns, domestic intelligence activities, and race and drug problems. Heise claims that in some cases DOD has classified bad news so it cannot be released. In other cases, answers to media queries are distorted and incomplete.

Heise laments that the answers reporters receive depend on their asking exactly the right questions. In my opinion, asking the right question is precisely what reporters are supposed to do.

The author writes that not enough correspondents regularly cover the Pentagon. This paucity prevents those who do from going to the field to verify information.

A discussion of possible reasons why unclassified, releasable information is not released is presented. Heise concludes that policy review in disclosing information may really be a bad news review in some cases. He does not find that bad news is withheld from superiors by subordinates. Rather, he finds that certain commanders prevent information release. In other cases a public affairs/information officer may be at fault.

He also finds that some officers believe the military and the media should be a team. On the other hand, the media sees an adversary relationship as necessary.

This officer attitude is linked to a Navy memo which points out that naval officers do not see themselves as having to account to the public for their actions, according to Heise. The memo supposedly indicates that some naval officers consider themselves an elite group requiring public support.

Heise concludes the Pentagon may withhold or distort information that may have an adverse effect on a program or policy. Bad news that might interfere with national security may be manipulated. Self-serving public relations play little part in information manipulation. Obsession with security isn't a factor.

The author suggests commanders receive education in media-military relations. He recommends that directives be changed to insure the Pentagon's information policy really is "Maximum disclosure with minimum delay." Finally, he suggests the media review the performance of the Pentagon press and that those who are too supportive or too cavalier in treating the military be transferred.

Heise raises critical issues in this book that exceed media-military relations. One is, just how responsible to the public is the military supposed to be?

Officers, regardless of rank, and especially public affairs officers, should read this book. They may not like it, but Heise is providing fairly balanced bad news, as he sees it, about the military.

Despite its flaws, *Minimum Disclosure* is an important book for the armed forces officer.

ADDITIONAL SELECTIONS: *Published by Charles Scribner's Sons, New York, the following books are recommended because of their quality and interest to the professional soldier.*

WARSHIPS OF THE WORLD (Escort Vessels), *by Bernard Ireland, 153 pages, $12.50.* This Volume of Warships of the World continues Bernard Ireland's guide for the layman in a form that omits unclear jargon while providing detail fine enough for the most questioning student of naval development. It does so with photographs for almost all the important classes and with considered judgments on their fighting ability. Escort Vessels is a must for enthusiast, historian, and modeler alike.

AIRBORNE AT WAR, *by Napier Crookenden, 144 pages, $14.95.* In this book a distinguished airborne soldier looks back at some of the airborne operations of World War II, not to examine outdated techniques, but to see what sort of spirit the airborne assault developed in its soldiers and airmen and to compare the operations of the three nations who used them most often and effectively — Germany, Great Britain, and the United States.

ANSWERS TO AIRCRAFT RECOGNITION QUIZ

Photo 1: MiG-21 Fishbed J. This Soviet aircraft remains one of the most extensively used in the world. Most Fishbeds in use today are of the third generation types of the J, K, and L versions. They differ substantially from the first generation models and to a lesser degree from the second generation models in WEFT characteristics.

Photo 2: Mi-4 Hound. This helicopter is still used extensively by the Soviet Union and Warsaw Pact nations. It is used for troop transport and as an armed gunship helicopter.

Photo 3: SAAB-37 Viggen. Built and used by Sweden, this supersonic aircraft is characterized by its large delta wing and canard wings mounted forward of the delta wing and above the air intakes.

Photo 4: F-111. This is a US aircraft used mainly for interdiction missions. A strategic bomber version also exists. The Soviet Fencer is similar in appearance, differing only in the location and shape of the intake and pylons carried on the fuselage and glove section of the wings of the Fencer, while they are on the movable part of the wings of the F-111.

Photo 5: MiG-27 Flogger D. There are several versions in the Flogger series aircraft and the Flogger D, characterized by its sloping nose, is the version optimized for ground attack missions. Aircraft in the Flogger series are becoming the Soviets' primary fighters.

Photo 6: Mirage III. Built by the French, the Mirage III is widely used by many nations, and it exists in several versions. It is a combat veteran in Mideast wars and is characterized by its delta wing. It is used for both air-to-air and ground attack missions.

Senior Air Defense Artillery Commanders

MG Charles F. Means
32 AADCOM

COL Joseph D. Ryan
10th ADA Group

COL. J. Lapsley Smith
The School Bde

COL Joseph W. House
11th ADA Group

LTC James R. Ervin
1st Bn, 1st ADA (Hawk)

LTC Richard G. Kurtz
1st Bn, 68th ADA (C/V)

LTC Larry K. Green
2d Bn, 5th ADA (C/V)

LTC Domenic P. Rocco
4th Bn, 61st ADA (C/V)

LTC William H. Miller
1st Bn, 51st ADA (C/V)

LTC Joseph H. Felter, Jr.
9th Inf DIVADA

LTC James B. McCoy
1st Bn, 67th ADA (C/V)

LTC Lewis L. Carter
1st Bn, 4th ADA (Hawk)

LTC Dwight K. Robinson
5th Bn, 52d ADA (C/V)

LTC Darrel A. McFerron
3d Bn, 4th ADA (C/V)

LTC Robert A. Drolet
3d Bn, 68th ADA (Hawk)

LTC Robert O. Hays
1st Bn, 3d ADA (C/V)

LTC Don A. Summers
2d Bn, 51st ADA (Hawk)

LTC John G. Williamson
1st Bn, 65th ADA (Hawk)

LTC David G. Hansen
2d Bn, 52d ADA (Herc)

LTC Harold D. Carpenter
2d Bn, 55th ADA (Hawk)

LTC Kenneth R. Dolson
1st Bn, 7th ADA (Hawk)

LTC Lowell G. LaRue
5th Bn, 57th ADA (Hawk)

LTC Edwin V. Bickerdike
4th Bn, 1st ADA (C/V)

LTC Richard Miks
1st Bn, 55th ADA (C/V)

LTC Melvin M. Adams
Student Bn

LTC Darvin E. Barnes
Staff & Faculty Bn

LTC Jack L. Jones
Allied Student Bn

COL John F. Crater
1st ADA Tng Bde

LTC Andrea A. Sarzanini
3d ADA Tng Bn (MSL)

LTC William J. Driscoll
4th ADA Tng Bn (FAW)

LTC Lawrence Anderson
Instructor Group

LTC Robert S. Hardy
2d Bn, 2d ADA (Hawk)

LTC Eddie L. Brandon
2d Bn, 62d ADA (Hawk)

LTC Frank T. Smith
3d Bn, 59th ADA (Hawk)

COL Donald R. Infante
69th ADA Group

LTC James M. Jellett
3d Bn, 7th ADA (Hawk)

LTC Robert F. Martin
2d Bn, 57th ADA (Hawk)

LTC Herbert A. Walker
6th Bn, 52d ADA (Hawk)

LTC Gary Q. Coe
3d Bn, 60th ADA (Hawk)

COL Thomas V. Forburger
94th ADA Group

As of 1 February 1980

LTC John C. Holley
2d Bn, 1st ADA (Herc)

LTC Newton F. McCurdey
5th Bn, 6th ADA (Herc)

LTC Miguel A. Garcia
2d Bn, 56th ADA (Herc)

LTC James R. Webb
3d Bn, 71st ADA (Herc)

COL James C. Cercy
108th ADA Group

LTC Roger L. Andrews
2d Bn, 67th ADA (C/V)

LTC Louis R. Clark
2d Bn, 60th ADA (C/V)

LTC Philip E. Holman
6th Bn, 56th ADA (C/V)

LTC Jay M. Garner
2d Bn, 59th ADA (C/V)

LTC James J. Cravens
3d Bn, 61st ADA (C/V)

LTC Ralph L. Allen
3d Bn, 67th ADA (C/V)

LTC Carlton H. Smith
1st Bn, 59th ADA (C/V)

BG Victor J. Hugo
38th ADA Bde

LTC Grady W. Barr
1st Bn, 2d ADA (Hawk)

LTC Decatur W. Morse
2d Bn, 71st ADA (Hawk)

LTC Lynn A. Bender
1st Bn, 44th ADA (Hawk)

LTC Lewis W. Bowker
2d Bn, 61st ADA (C/V)

LTC Daryl B. Matthews
1st Bn, 62d ADA (C/V)

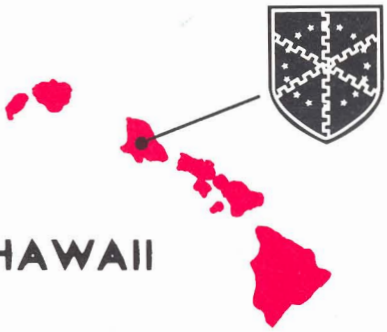
COL Edwin S. Olsmith
558th USA Arty Group (FA)

COL Robert W. Annette
559th USA Arty Group

LTC Charles E. Harmon
5th USA Arty Group

MILITANT

MEMOR ET FIDELIS
AUDACIA
FIRE FOR EFFECT


HAWAII

PRIMUS
PARES
INTER

55
VIGILANTIA

VETO

NULLIUS PAVET
OCCURSUM