Resume

MILITARY TECHNICAL POLICY

Chepkov I., *Doctor of Engineering Science, Professor,*
Lukhanin M., *Doctor of Engineering Science, Professor,*
Borokhvostov I., *Ph.D. in Engineering Science*
(Central Research Institute of Weapons and Military Equipment of the Armed Forces of Ukraine, Kyiv)

BASIC ASPECTS OF METHODOLOGY OF FORMATION AND SUPPORT OF MEDIUM-WEAPONS PROGRAM DURING A SPECIAL PERIOD

We describe a retrospective adoption and the current state of the system-conceptual, regulatory and program-routine defence planning documents in Ukraine and their impact on the creation of system-wide research. Based development methodology of formation of medium-term programs of development of arms and military equipment through the use of schemes of regular system models. The main aspects of the new methodology for the scientific substantiation of actions weapons programs and their differences in the formation in peacetime and in the conditions of the special period.

Keywords: *medium-term programs, development of arms, weapons programs.*

Zhdanov S. V., *Ph.D. in Engineering Science*
(Central Research Institute of Weapons and Military Equipment of the Armed Forces of Ukraine, Kyiv)

PROBLEM OF REPLACING THE FLEET OF COMBAT AIRCRAFT IN UKRAINE

One of the possible approaches to the problem of replacing the fleet of combat aircraft in Ukraine at the turn of 2025, buyout is based on the forecast of financial resources of financial resources to solve the problem and realizes the choice of the optimal variant of the aircraft class on economic criteria

AIR DEFENSE SYSTEMS

Lanetskyi B. M., *Honoured Master of Science and Engineering of Ukraine, Doctor of Engineering Science, Professor,*
Koval I. V., *Ph.D. in Engineering Science,*
Seleznyov S. V., *Ph.D. in Engineering Science*
(Air Forces Scientific Center of the Kharkiv Air Force University Named After Ivan Kozhedub, Kharkiv)

METHODOLOGY OF FORECASTING OF THE STATE OF AIR DEFENCE SYSTEMS OF THE AIR FORCES OF UKRAINE FOR SOLVING TASKS OF WEAPONS AND MILITARY EQUIPMENT DEVELOPMENT PLANNING

Problems of monitoring of technical state of electrical sheet connectors of antiaircraft missiles (AAM) are considered in the paper. Monitoring is carried out for stated characteristic prolongation. Necessity of

monitoring of a transient resistance value of electrical connector plug pins is proved. Recommendations for method of electrical sheet connector up state monitoring are formed with developing of monitoring device on the base of AAM airborne guidance package imitator.

Keywords: *forecasting technique, systems anti-aircraft missiles (SAM), medium and long terms.*

RADIO-TECHNICAL FACILITIES

Kamaltynov H. H., *Ph.D. in Engineering Science, Senior Research Fellow, Leading Researcher,*
Kukobko S.V., *Ph.D. in Engineering Science,*
Malyarenko O. S., *Ph.D. in Engineering Science*
(Air Forces Scientific Center of the Kharkiv Air Force University Named After Ivan Kozhedub, Kharkiv),
Kisiel P. I., *Ph.D. in Engineering Science*
(Central Research Institute of Weapons and Military Equipment of the Armed Forces of Ukraine, Kyiv)

IDENTIFICATION OF OBJECTS ON THE BATTLEFIELD. INTERNATIONAL EXPERIENCE ANALYSIS

The modern systems and means of identification of objects on the battlefield in the lines of "ground-ground" and "aircraft-to-ground" are analysed according to the automatic broadcast of data on own troops, using for RF tags and identification equipment on the battlefield by the principle of "request-response", which has the worldwide most attention. The principles of construction and operation of systems and means of identification on the battlefield, they achieved tactical and technical characteristics are considered. The experience of the industry in Ukraine in the development of means of identification on the battlefield presented.

Klymchenko V. Y., *Ph.D. in Engineering Science, Associate Professor,*
Kamaltynov H. H., *Ph.D. in Engineering Science, Senior Research Fellow, Leading Researcher*
(Air Forces Scientific Center of the Kharkiv Air Force University Named After Ivan Kozhedub, Kharkiv),
Bielavin O. V., *Chief Engineer of the Radiotechnical Troops*
(Command of the Air Force of Ukraine, Vinnytsya)
Yefimov I. L., *Leading Researcher*
(Central Research Institute of Weapons and Military Equipment of the Armed Forces of Ukraine, Kyiv)

PECULIARITIES OF THE CALCULATIONS OF RADIO HORIZON UTILIZATION RATIO IN VHF BAND SURVEILLANCE RADARS

The analytical method for determining the horizon utilization ratio of the VHF band surveillance radars on the basis of reflection method is considered. The conditions and factors that influence the value of radio horizon utilization ratio are determined, design ratio for its calculation is obtained taking into account the specific conditions of the combat use of radar.

The applicability of mentioned method of the radio horizon utilization ratio determination for the calculation of detection range of targets that have different values of effective reflective area on low and medium altitudes taking into consideration terrain features of the radar sit is proved.

Keywords: *VHF band radars, air target detection area, radio horizon utilization ratio*

AUTOMATED CONTROL SYSTEMS

Herasymov S. V., *Ph.D. in Engineering Science,*
Kukobko S. V., *Ph.D. in Engineering Science,*
Roshchupkin Ye. S., *Ph.D. in Engineering Science*
(Air Forces Scientific Center of the Kharkiv Air Force University Named After Ivan Kozhedub, Kharkiv),
Rasstryhin O. O., *Doctor of Engineering Science*
(Central Research Institute of Weapons and Military Equipment of the Armed Forces of Ukraine, Kyiv)

SYNTHESIS OF MEASURING SIGNALS FOR DETERMINATION OF THE TECHNICAL STATE OF AUTOMATIC CONTROL SYSTEMS

The criteria of synthesis of optimum measuring signals are offered and probed for control of parameters of the systems of automatic control. Grounded, that the considered criteria are taken to unique which it is suggested to utilize for finding of parameters of optimum entrance measuring signal for determination of the technical state of the of automatic control systems.

Oliiarnyk B. O., *Doctor of Engineering Science,*
Yevtushenko K. S., *Ph.D. in Engineering Science*
(State Enterprise "Lviv Radio Engineering Research Intitute", Lviv)

COMPLEX OF UNIFIED TECHNICAL TECHNIQUES FOR SRAFF AND COMMAND VEHICLES AND ARTILLERY

On the basis of study of battery automated control functional tasks unitized family of technique for staff and command vehicles regardless of moving platform type is proposed.

WEAPONS AND MILITARY EQUIPMENT OF ENGINEER TROOPS

Shkvarskyi O., *Research Fellow*
(Central Research Institute of Weapons and Military Equipment of the Armed Forces of Ukraine, Kyiv)

CALCULATIONS OF THE MILITARY LOW-LEVEL BRIDGE HORIZONTAL LOAD

A study of wooden bridgework behaviour under the action of break loads was undertaken. Experimental studies of the behaviour of the bridge structural elements to the horizontal loads were carried out during the construction of military low-level bridges and their further exploitation.

In support of experimental studies structural systems of bridge were calculated, and were down to calculations of multiple bents based on structural theory methods. It was found that at the initial load action on one of the bridge spans load is perceived only by two adjacent rows of the bridge bearings. Next adjacent rows of the bridge bearings started reacting when the heave was 4 cm and more.

Keywords: *water obstacles; brake load; bending moment curve; pile*

NAVY ARMAMENT & EQUIPMENT

Derepa A., *PhD in Technical Sciences*
(Central Research Institute of Armament and Military Equipment of the Armed Forces of Ukraine, Kyiv)

THE WAYS OF REMOVAL OF VAGUENESS OF DIRECTION-FINDING OF SYSTEM «HYDROACOUSTIC STATION - SURFACE VESSEL» WITH THE FLEXIBLE PROLONGED TOWED AERIALS

Researches in relation of possibility of increase of efficiency of the hydroacoustic system «hydroacoustic station - surface vessel» with flexible prolonged towed aerials by removal of the bearing vagueness are conducted in this work.

PRODUCTION, UTILIZATION, MODERNIZATION, MAINTENANCE

Zhyvotovskyi R. M., *PhD in Technical Sciences,*
Petruk S. M., *Senior Researcher*
(Central Research Institute of Weapons and Military Equipment of the Armed Forces of Ukraine, Kyiv),
Nikiforov M. M., *PhD in Military Sciences*
(Military Institute of Taras Schevchenko Kiev National University, Kyiv)

FEATURES IMPROVEMENT AND DEVELOPMENT DIAGNOSTIC SYSTEM SUPPORT PREDICTIVE BASED SUPPORT

In this work the method of implementing new information technologies during operation of anti-aircraft missile was investigated. This method allows the state to justify a general assessment of the quality of the system of intellectual support for the operation and formulate basic principles of technical diagnostics weapons.

Kakhovskyi M.Yu., *researcher,*
Huliaiev A.V., *PhD in Technical Science, senior research fellow*
(Central Research Institute of Armament and Military Equipment of the Armed Forces of Ukraine, Kiev),
Yarovitsyn O.V., *PhD in Technical Science, senior research fellow,*
Cherviakov M.O., *PhD in Technical Science, senior research fellow*
(Paton Electric Welding Institute of NAS of Ukraine)

RELATIONSHIP OF THERMAL CHARACTERISTICS OF LOW-AMPERAGE ARC AND STRESS-STRAIN STATE OF WELDED JOINTS FROM HEAT-PROOF NICKEL-BASED ALLOYS UNITS OF GAS-TURBINE ENGINES OF MILITARY AND TRANSPORT AVIATION

The possibility of improving the weldability of nickel-based superalloys from the standpoint of the relationship of thermal characteristics of welding heat source and thermal deformation processes in the welded joint was investigated.

SURVIVABILITY

Kolchigin N. N., *Doctor of Physico-Mathematical Sciences, Professor, Chair of the Department,*
Bykov V. N., *Doctor of Physico-Mathematical Sciences, Professor,*
Ivanchenko D. D.
(Kharkov National University named after V.N.)
Glebov V. V., *Doctor of Engineering Science, Professor, Deputy Chief Designer,*
Deviatilov Yu. I., *Leading Designer,*
Rolenko S. A., *Head of the Department*
(Kharkiv Morozov Machine Building Bureau),
Grichanjuk A. M., *PhD in Technical Sciences*
(Kharkiv Air Force University Named After Ivan Kozhedub)

EXPERIMENTAL RESEARCH OF INDIVIDUAL WIDE-BAND CAMOUFLAGE KITS

The results of experimental research of mock-up specimens of individual wide-band camouflage kits have been stated. The volume of the research, methods, and means of evaluating characteristics in various wavelength ranges have been described. The efficiency of using an individual wide-band camouflage kit on armoured vehicles has been confirmed. The directions of further work have been determined.

Keywords: *research, object, camouflage kit, method, wavelength range, background, contrast, evaluation.*

INTELLECTUAL PROPERTY

Buhera M., *advanced student*
(Central Research Institute of Weapons and Military Equipment of the Armed Forces of Ukraine, Kyiv)

METHOD OF MORPHOLOGICAL ANALYSIS OF PATENT INFORMATION FOR THE CONSTRUCTION OF FORECASTING STATISTICAL MODEL OF DYNAMIC TYPE PROTECTIVE DEVICES DEVELOPMENT

The article presents method of patent research by applying statistical processing of patent information that differs from the known use of statistical forecasting model of development of dynamic type protective devices, constructed with the help of morphological analysis.

Keywords: *morphologic analysis method, patenting information, dynamic type protective devices, technical solutions, weapons and military equipment.*