वैमानिकी दर्पण

DGAQA MAGAZINE ON AVIATION QUALITY ASSURANCE

आत्मनिर्भर भारत

ENSURING FLIGHT SAFETY
THROUGH
QUALITY ASSURANCE

आज़ादी का अमृत महोत्सव

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Message from Director General, AQA

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31 Aug 2021

All officers & Staff of DGAQA Fraternity,

DG's MESSAGE ON 68th DGAQA DAY

On the occasion of 68th Anniversary of DGAQA, I extend my felicitations and warm greetings to all DGAQA personnel and their families.

My special greetings to our esteemed DGAQA veterans and their families.

'DGAQA Day' is a momentous occasion to look back and note our remarkable achievements. It is also an occasion to rededicate ourselves to our primary objective of providing requisite QA towards flight safety.

In the year gone by, we have achieved major milestone with the Issue of DDPMAS-2021 which was released by Hon'ble RM during Aero India-2021. Further, as part of export promotion scheme of MoD/DDP, we have started providing QA Certification towards 'Trials/Testing' and 'Fit for Military Use' to Firms even without any formal supply order from Services. Capacity Assessment & Registration of Trade Firms and Test Labs are also being undertaken. Further, we have added three more of our Field Offices at HAL-Kasargod, BEL-Chennai and BEL-Pachkula.

DGAQA further developed a futuristic model of 'Quality Rating of Firms' in association with IAF & HAL incorporating methodology for enhanced delegation of QA/QC activities, keeping in mind the quantum jump in our activities with large scale involvement of private sector in Military Aviation under 'Make in India'. This model is now additionally being developed for HAL Korwa.

The MoD/DDP has appreciated our QA model under AFQMS and has directed the other defence QA organizations to redefine / align their QA methodologies on similar lines. Further, on our suggestion, Incentivisation of QC personnel that get DGAQA approval is under active consideration of DDP/MoD.

As you are aware of the major changes taking place in the area of Defence Production with corporatization of Ordnance Factories so as to have increased productivity and quality consciousness, the revised QA methodologies at OFs are being framed at MoD/DDP wherein the existing inspection / testing approval methodology is being reviewed in line with the best Globalpractices.

DGAQA has always encouraged Indigenous development & production of various Air Systems & Airborne stores to achieve self-reliance and to reduce dependency on foreign OEM. Further, we are actively working on the 'Atma Nirbhar Bharat' mission under the guidance of MoD/DDP.

A number of developmental projects pertaining to Aircrafts, Helicopters, UAV's, Guided Air Weapons, Radar Systems etc are in advance stage at various DRDO Labs & DPSU's wherein we need to ensure requisite Quality standards as per the Technical requirements.

A number of developmental projects on constructions/upgradation of our Quarters/recreation facilities have been accelerated to enhance quality of life and standards of living of our personnel.

On this occasion, I take this opportunity to pay tribute of our veterans and acknowledge their outstanding contributions. It is their vision and hard work that nurtured DGAQA all along since its inception in the year 1954.

Last year, we started our Technical magazine 'Vaimaniki Darpan' and I am extremely happy to observe active participation by our fellow officers by providing large numbers of Quality Articles that are being appreciated by User Agencies, DPSUs & MoD etc. I request all DGAQA personnel to keep on the momentum and keep sharing your valuable experiences for the benefit of all.

On the 68th Raising Day, let us resolve to continue performing our duties with utmost dedication and professionalism. I am confident that our collective capacity to achieve excellence and our commitment will take DGAQA to further heights.

Jai Hind!

Best Wishes!

31-08-2021

(S Chawla)
Director General

THE ROLE OF AUDITS IN GOVERNMENT QUALITY ASSURANCE

Quality auditing is the process of examining the effectiveness of management control programs, the purpose of which is to prevent problems. Quality audits are undertaken to identify problems. Quality audit which forms an important part of a quality management system, is an independent review conducted to compare the given aspects of quality performance with a standard for that performance. It is one of the key management tools for achieving the objectives set out by the organisation. It is an activity of gathering information for the improvement or corrective action.

Shri P. K. Sethi
DG(Retd.), DGAQA

In recent years the country has seen a dramatic shift from the Public Sector to the Private Sector in the field of defence production. Most of the establishments require some amount of Government Quality Assurance (GQA). This is especially a must in the aeronautical field where the cost of failure can be very costly and disquietening. The extent of the activities of GQA will vary depending on the product, its criticality and the extent of confidence required by the users.

Notwithstanding the above, the extent of GQA will also depend on whether the final user is the Army, the Navy or the Airforce. There are however some common features and tools that can be used in all areas of defence production by the Government Quality Assurance.

One such potent tool is Audit. The Government Quality Assurance Agency can stipulate Audit requirements on suppliers and also carry out audits where considered essential.

A. Stipulating audit requirements by Government Quality Assurance Departments:

The planning and conduct of audits can be utilised to make the Government Quality Assurance more efficient and effective.

The requirements of approval of the quality management system of the organization on whom government orders are placed/ to be placed will help in obtaining better confidence in the organization's capability to meet quality requirements. However, there also is a need to obtain more information about the performance of the organization in the area of quality achievement. This is possible by making it mandatory for the organization to submit and get approved a quality audit program by the GQA.

B. What is an audit-

An audit is defined as a formal, systematic , independent, random and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled. It is a check of the way the system is operating and to see if there are deficiencies according to the defined requirements. Audits provide assurance that a quality system is itself adequately defined and understood, is being followed and it provides the correct degree of effectiveness when followed.

Audits may be carried out with different objectives by different organizations but they **have certain characteristics in common**.

1. Audits should be carried out by persons or groups from outside the department /company being audited.
2. Audits are random checks of the system and they are not part of the inspection task. They are designed to uncover "type faults" for example poor documentation control, lack of understanding of the system, inadequate instructions, inadequate training for special process personnel etc.
3. Audits are carried out in an objective manner i.e. demonstrable, factual evidence is the basis for assessment.

C. Types of audits

Audits can be classified in several ways:

1. Based on who conducts the audits

a) **First Party audits or Internal audits-** The audit is conducted by the Organization wherein the management needs to assure themselves that the system is satisfactory and is being followed. Such audits need to be frequent with fast follow-up action and the action needs to be recorded and documented. The records of such audits and follow-up action are necessary parts of the quality management system to demonstrate to outside organizations that the quality system is working. This is part of the management review process.

b) **Second Party audits or External audits-** The primary objective of an external audit is to examine the quality system of another organization and determine the degree to which it complies with a given set of requirements (quality standard, quality manual etc). Such audits are carried out by clients and prospective clients.

The effectiveness of external audits depends on the proper recognition of secondary objectives. The secondary objectives will vary depending on when the audit is carried out.

External audits can be a Pre-contract audit, an In-contract audit or a Post- contract audit.

I **Pre-contract audits could have one or more of the following objectives :**

i. To compare two or more suppliers competing for a particular contract.

ii. To identify special quality requirements for a particular contract.

iii. To recommend and establish levels of purchaser QA activity during the course of the contract.

iv. To assist regular suppliers to improve their quality systems.

II **In-contract audits may have one or more objectives:**

i. To verify implementation of a supplier's quality system on a contract.

ii. To confirm or amend the established levels of purchase inspection and test.

III **Post- contract audits may have one or more objectives:**

i. To provide post-contract evidence of effective quality assurance.

ii. To take decision to award or withhold future contracts.

c) Third Party audits:

These are audits carried out by appropriate third parties who have no direct involvement in the system of purchase, supply or usage of the product involved. They are however competent in the assessment techniques and have exposure to the requirements of the area being audited. If the assessment is found satisfactory the certifying authority issues a certificate of assessment and approval to the relevant quality standard. This certificate is evidence to prospective customers that the organization operates a quality system which meets the requirements of the standard. The certifying agency stipulates the validity of the certificate. It also mentions the dates of the follow up audit.

A direct benefit of certification is that the certificate will be respected by other prospective clients and so the organization does not have to be audited repeatedly for the quality system.

Agencies like DGAQA, DGQA and Naval inspection Agency can also be considered as Third Parties who have no direct involvement in production or usage but perform their functions independently.

2. Based on the specific feature of audit

a) System audit: The audit will cover the quality management system to verify compliance to the stipulated requirements.

b) Product audit: The audit will cover auditing of products at appropriate stages of production and delivery to verify conformity to all specified requirements such as product dimensions, functionality, packaging and labelling at a defined frequency.

c) Manufacturing Process audit: This covers auditing of manufacturing processes to determine their effectiveness.

d) Configuration audit : Configuration audit is performed in accordance with documented procedures to determine whether a product conforms to its requirements and product configuration information.

Normally there are two types of configuration audits

I A functional configuration audit – this is a formal examination to verify that a configuration item has achieved the functional and performance characteristics specified in its product configuration information.

II A physical configuration audit – this is a formal examination to verify that a configuration item has achieved the physical characteristics specified in its product configuration information.

A configuration audit may be required before the formal acceptance of a configuration item. This type of audit by the GQA should be an integral part of its function.

3. Based on the exact extent of audit

Depending on the purpose, the technical requirements and the time frame allotted , the extent of audit may vary . The extent of audit can be divided into four classes

a) **Broad audit :** This type of audit may need to cover all or a number of areas of the production site.

b) **Narrow audit :** This type of audit is resorted to when a small area of the production site is to be examined.

c) **Shallow audit :** This is resorted to when the aim is to examine the existence of all areas required for production.

d) **Deep audit:** This is resorted to in case of defect investigations to ascertain the cause of defect.

D. DISCUSSION

The various types of audits have been discussed above. The Government Quality Assurance departments can use one or a combination of the above audits for effective quality assurance and obtain a high degree of assurance in the area for which they are mandated. For this purpose there is a need to stipulate in their document of approval that a quality audit programme consisting of first, second or third party and follow up audits needs to be submitted by the concerned manufacturers for approval by the GQA. This may consist of first party audits, second party audits and third party audits. The GQA can then stipulate the frequency and types of audits that they will be carrying out as part of their duties. Second party audits can be sought for where the sub-contractor's role is critical or he is dealing with critical products/processes. Further third party certification and follow up audit reports can be sought for as a mandatory document.

Audits can also be extremely useful for the purpose of defect investigation and improvement. This can be resorted to by the GQA as and when necessary. Adverse findings during the process of defect investigations can be utilised for appropriate corrective and preventive decision making.

E. CONCLUSION:

The above treatise has given the various types of audits that are in use. The Indian Government Quality Assurance departments can stipulate in their Special Requirements for Quality a judicious mix of requirements of audits to be carried out by the producer and the GQA.

The submission of audit reports by the manufacturing organisation can also be made mandatory depending on the product and its criticality and the requirement of confidence in the Quality System.

This should be further supplemented by audits by the Government Quality Agency especially the configuration audits. Further, different other types of audits can be carried out as and when felt necessary. Corrective action where needed will need to be ensured.

The implementation of the above will go a long way to ensure Effective and Efficient Government Quality Assurance.

Examples of practical audits carried out for the purpose of defect investigation of critical aerospace systems, subsystems and items and their impact will form the subject matter of subsequent articles.

About the Author: Shri P K Sethi, Director General (Retd.) DGAQA joined DAQAS Service in Aug 1977 and superannuated in Nov 2010.

दूरस्थ निरीक्षण के द्वारा वैमानिकी गुणवत्ता आश्वासन

श्री ओमपाल सिंह आर्य
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भूमिका:

आज के बदले हुए परिपेक्ष में सब कुछ बदल गया है। जब कोरोना महामारी ने सम्पूर्ण संसार को घेरा तो कोई भी क्षेत्र इससे अछूता नहीं बचा। अब ये जगव्यापी सत्य है की कोरोना से बचाव ही इसका उपचार है। इसके बचाव का सबसे सरल तरीका है आपस में दो फुट की दूरी बनाए रखना, मुखावरण पहनना, हाथों को स्वच्छ रखना और संक्रमित होने पर अपने आप को पूर्णतः स्वस्थ होने तक सबसे अलग रखना। इन नए मानकों ने सभी क्षेत्रों में इन बदलावों को अपनी कार्य प्रणाली में समाविष्ट करने के लिए बाध्य कर दिया है। वै॰गु॰आ॰म॰ ने भी इस बदलाव को स्वीकार कर अपनी दैनिक कार्यप्रणाली में इन मानकों का समावेश किया है। ये तकनीकी प्रपत्र अब तक के वैमानिक अनुभव को उपयोग कर वैमानिक क्षेत्र में दूरस्थ निरीक्षण के उपलब्ध अवसरों एवं संभावनाओं को खोजता है।

वै.गु.आ.म.(वैमानिकी गुणवत्ता आश्वासन महानिदेशालय):

वै.गु.आ.म. की प्राथमिक भूमिका उत्पादन / सेवाओं के विभिन्न चरणों के दौरान गुणवत्ता आश्वासन प्रदान करना है। इसका अर्थ यह है कि अभिकल्प, विकास, उत्पादन, उन्नयन और भारतीय वायु सेना की अपेक्षाओं को पूरा करने के लिए आश्वस्त करना। वै.गु.आ.म. मानकीकरण गतिविधियों में भी शामिल है। वै. गु.आ.म. के द्वारा प्रदान की जाने वाली अन्य सेवाएँ में क्षमता आकलन और पंजीकरण, दोष जांच और उपयोगकर्ताओं, रक्षा मंत्रालय, उत्पादन, अभिकल्प और विकास एजेंसियों को तकनीकी परामर्श भी प्रदान करता है। इस संगठन के अधीन प्रतिष्ठान, सार्वजनिक क्षेत्र के रक्षा उपक्रमों, आयुध कारखानों, डीआरडीओ प्रयोगशालाओं और निजी कंपनियों में सेवारत हैं तथा देशभर में फैले हुए हैं। वै॰गु॰आ॰म॰ प्रक्षेपात्र विकास, निर्माण, एवं सामरिक स्थापन के लिए मुख्य केंद्र भी है।

मारक वायुयान:

आज के युग में राष्ट्रीय रक्षा में वही राष्ट्र सर्वोच्च है जिसके पास श्रेष्ठ तकनीक के मारक वायुयान एवं उनसे संबन्धित प्रौध्योगिकी हैं। केवल मारक वायुयान की प्राप्ति ही नहीं बल्कि उनका सही रख रखाव भी अति आवश्यक है, ताकि हर क्षण मारक वायुयान सेवावृत रहें। इनके रख रखाव में निरीक्षण का बहुत बड़ा योगदान है। निरीक्षण के पश्चात ही किसी भी मारक वायुयान को सेवा के लिए सुरक्षित एवं उड़ानयोग्य घोषित किया जा सकता है। भारतवर्ष में यह कार्य भारत सरकार, रक्षा मंत्रालय के अधीन वैमानिकी गुणवत्ता आश्वासन महानिदेशालय, नई दिल्ली के द्वारा किया जा रहा है। यह रक्षा मंत्रालय के अधीन रक्षा उत्पादन विभाग का एक संगठन है। यह संगठन गुणवत्ता आश्वासन और सैन्य विमान, मानवरहित हवाई वाहन, वायुयान इंजन, हवाई तंत्र, एवियोनिक्स, युद्धसामग्र, ईंधन,तेल एवं स्नेहक, भूतलीय सहायक तंत्र और प्रक्षेपात्र के अभिकल्प और विकास, उत्पादन के दौरान की अंतिम स्वीकृति प्रदान करता है।

दूरस्थ निरीक्षण: यह एक प्रकार का निरीक्षण है जिसमे निरीक्षक कार्य–वस्तु का निरीक्षण उससे दूरी बनाते हुए निरीक्षण करता है। कार्य– वस्तु की निरीक्षक से दूरी कुछ कि॰ मी॰ से लेकर कई सौ कि॰ मी॰ हो सकती है। यह निरीक्षण दो प्रकार के होते है जो कि दूरदर्शी निरीक्षण एवं दूरदर्शीय अंकित चलचित्र निरीक्षण हैं। हम सभी वैश्विक महामारी कोविड–१६ के प्रकोप से जूझ रहे हैं तो इस समय दूरस्थ निरीक्षण का वैमानिक गुणवत्ता आश्वासन में प्रयोग प्रासंगिक है।

दूरस्थ निरीक्षण के लिए अवयशक वस्तुएं निम्न प्रकार हैं।

१) उत्कृष्ट विभेदन छायाचित्रक
२) उत्कृष्ट विभेदन चलचित्रक
३) उच्च गतीय इंटरनेट
४) सामान्य संकृतीय संगणक अथवा पर्सनल कंप्यूटर
५) मोबाइल अथवा टैब्लेट
६) ई–मेल
७) गूगल मीट अथवा वेबेक्स अथवा माइक्रोसॉफ़्ट टीम
८) मुद्रक
९) अकर्णक

दूरस्थ निरीक्षण का वैमानिक गुणवत्ता आश्वासन में समावेश:

जैसा की हमे ज्ञात है की हमारे प्रधानमंत्री जी ने भारत को इस अद्वितीय कोरोना काल में सभी चुनोतियों को अवसरों में बदल कर आत्मनिर्भर बनाने का आहवान किया है। आहवान के साथ साथ उन्होने कई महत्वपूर्ण एवं अभूतपूर्व निर्णय लिये हैं। रक्षा अधिग्रहण एवं उत्पादन के क्षेत्र में अधिक से अधिक स्वदेशीकरण पर ज़ोर दिया जायेगा। इससे देश में चौतरफा विकास होने की संभावना है। इस विकास की महायात्रा में वै.गु.आ.म. अपना महत्वपूर्ण योगदान देने के लिये तत्पर है। जैसा कि हम जानते हैं कि स्वदेशीकरण में वै.गु.आ.म. की भूमिका अभिकल्प, विकास, उत्पादन, उन्नयन और भारतीय वायु सेना की अपेक्षाओं को पूरा करना अर्थात हर कदम पर होगी।

स्वदेशीकरण में वैमानिक गुणवत्ता आश्वासन की कार्य प्रणाली:

वैमानिक गुणवत्ता आश्वासन का कार्य यह सत्यापित करना है कि परीक्षण के तहत उपकरण अनुमोदित तकनीकी के सभी विनिर्देशों को पूरा करता है। योग्यता परीक्षण प्रक्रिया और स्वीकृति परीक्षण प्रक्रिया बनाते समय इसको सुनिश्चित किया गया है। योग्यता परीक्षण प्रक्रिया या स्वीकृति परीक्षण प्रक्रिया में उल्लिखित जांच बिन्दु मुख्य रूप से तीन तरीको से सत्यापित होते हैं;

(१) तकनीकी विशिष्टताओं के साथ उनकी शुद्धता,

अनुरेखिक्ता और संरेखण के लिए दस्तावेजों का सत्यापन करके। योग्यता परीक्षण प्रक्रिया या स्वीकृति परीक्षण प्रक्रिया के दौरान सत्यापित दस्तावेजों के कुछ उदाहरण अभिकल्प दस्तावेज, अनुपालन के प्रमाण पत्र, विवरण तालिका, अंशांकन अभिलेख, परीक्षण अभिलेख आदि हैं;

(२) भौतिक सत्यापन जैसे कि तकनीकी विनिर्देश और सामग्री सूची के साथ संरेखण के लिए उत्पादक सामग्री के निरीक्षण के रूप में, योग्यता परीक्षण प्रक्रिया या स्वीकृति परीक्षण प्रक्रिया में निर्दिष्ट आयामी जाँच, विन्यास जाँच।

(३) विनिर्माण, गुणवत्ता नियंत्रण और परीक्षण में प्रयुक्त प्रक्रियाओं का सत्यापन करके।

तकनीकी विनिर्देशों को बनाना और उनका अनुमोदनः

(क) अभिकल्प दस्तावेजों को बनाना और उनका अनुमोदन

(ख) आद्यरूप के लिए सामग्री निरीक्षण और अनुमोदन

(ग) आद्यरूप के लिए विनिर्माण प्रक्रियाओं का निरीक्षण और अनुमोदन

(घ) चरण निरीक्षण और आद्यरूप निर्माण की मंजूरी

(च) आद्यरूप और उत्पादन अनुमोदन की योग्यता

(छ) सामग्री निरीक्षण और थोक उत्पादन के लिए अनुमोदन

(ज) उत्पादन के लिए विनिर्माण प्रक्रियाओं का निरीक्षण और अनुमोदन

(झ) नमूना योजना के अनुसार उत्पादन मात्रा की स्वीकृति

<u>वै.गु.आ.म. प्रतिनिधि की भौतिक उपस्थिति में चुनौतियाँः</u>

(१) वै.गु.आ.म. अपने सिमित मानव संसाधनों के होते हुए एक साथ कई परियोजनाओं पर वै.गु.आ. सेवाएँ प्रदान कर रहा हैं।

(२) वै.गु.आ.म. के प्रतिनिधि का विक्रेता के परिसर या परीक्षण प्रयोगशालाओं में आवागमन में काफी समय लगता है, यह १–२ घंटे से लेकर १–२ दिन तक का समय लगता है। रद्द होने के कारण परियोजना में अत्यधिक देरी हो जाती है।

(३) वै.गु.आ.म. प्रतिनिधि की भौतिक उपस्थिति के लिए यातयात, ठहरने और खानपान जैसे आवश्यक संसाधनों की भी आवश्यकता होती है।

(४) वर्तमान काल में कोरोना महामारी के कारण उपरोक्त सभी में बहुत जोख़िम भरा है।

<u>वै.गु.आ.म. की संशोधित कार्यप्रणालीः</u>

(१) सभी दस्तावेज, जो कि योग्यता परीक्षण प्रक्रिया या स्वीकृति परीक्षण प्रक्रिया के अनुसार आवश्यक हैं, पीडीएफ प्रारूप में स्कैन करके और सत्यापन के लिए नामित वै.गु.आ.म. के क्षेत्रीय कार्यालय में ईमेल के माध्यम से स्वीकार किए जाते हैं।

(२) भौतिक सत्यापन की आवश्यकता वाले सभी जाँच और परीक्षण विक्रेता अपने गुणवत्ता नियंत्रण कर्मियों द्वारा कराए जाएंगे और उत्कृष्ट विभेदन छवियों के रूप में लिए जाएं। छायाचित्रण ऐसी होगी कि सत्यापित की जाने वाली सभी आवश्यक आवश्यकताएं छवियों में कैद हो जाएं और हर छवि में दिनांक और समय की मुहर हो। इसके अलावा, विक्रेता के कारखाने का चिन्ह और परियोजना का संदर्भ भी छवियों पर लगाया जाए। ये चित्र ई–मेल के माध्यम से सत्यापन के लिए वै॰गु॰आ॰म॰ के नामित कार्यालय को प्रेषित किए जाते हैं।

(३) सत्यापन की आवश्यकता वाली सभी प्रक्रियाओं को विक्रेता के गुणवत्ता नियंत्रण कर्मियों द्वारा वास्तविक समय में चलचित्र के रूप में लिए जाएँ। चलचित्रण इस तरह किया जाए कि सभी आवश्यक तथ्यों का अभिग्रहण हो और हर चलचित्र पर तारीख और समय की मुहर हो। इसके अलावा, विक्रेता की कंपनी का लोगो और परियोजना का संदर्भ भी हो। फिर ये चलचित्रण ई–मेल के माध्यम से सत्यापन के लिए नामित वै.गु.आ.म. के कार्यालय को प्रेषित किया जाता हैं।

(४) महत्वपूर्ण प्रक्रियाओं के मामले में, विक्रेता के कारखाने या परीक्षण प्रयोगशालाओं से चलचित्रण का सीधा प्रसारण किया जाए।

(५) उपरोक्त प्राप्त होने पर, वै.गु.आ.म. के कार्यालय निर्धारित समय सीमा में सत्यापित कर विक्रेता को उपयुक्त जानकारी ईमेल के द्वारा विस्तृत रूप से दी जाती है।

(६) योग्यता परीक्षण प्रक्रिया या स्वीकृति परीक्षण प्रक्रिया के अनुसार सभी आवश्यक सत्यापन के सफल समापन पर, नामित वै.गु.आ.म. का कार्यालय अंतिम अनुमोदन जारी करता है, जिसमे अंतिम मंजूरी, प्रकार अनुमोदन, थोक–उत्पादन अनुमोदन, निरीक्षण प्रपत्र आदि। ये अनुमोदन विक्रेता को ईमेल के द्वारा सूचित किया जाएगा।

(७) जैसा कि ऊपर बताया गया है, किसी उपकरण के योग्यता परीक्षण प्रक्रिया या स्वीकृति परीक्षण प्रक्रिया के स्थायी अभिलेख के रूप में रहेगा और आवश्यकता पड़ने पर फिर से देखा जा सकता है। यह विशेष रूप से वारंटी विफलताओं, दोष जांच, संशोधनों आदि के संबंध में सहायक होगा।

<u>निष्कर्षः</u>

आज हम तकनीकी रूप से विकसित हैं। आज जो तकनीकियाँ उपलब्ध है वो हमें अनदेखी परिस्थितियाँ के अनुकूल बनाने में सहायक हैं। यह तकनीकी प्रपत्र उन तकनीकियों के बारे में गहराई से विश्लेषण करता है। कोरोना वैश्विक महामारी के इस दौर में जो विषम परिस्थियाँ उत्पन्न हुई हैं उनसे निपटने में दूरस्थ निरीक्षण की तकनीकियों के उपयोग से वैमानिक गुणवत्ता आश्वासन काफी हद तक किया जा रहा है। ये तकनीकियाँ काफी सरल किफ़ायती एवं परिस्थिति अनुकूल उपयोग में लाये जा रही है। इन तकनीकियों को प्रयोग करके हमने वैमानिक आश्वासन गुणवत्ता के दौरान किए जानेवाले निरीक्षण को निरीक्षक तथा इससे संबन्धित बाकी लोगों के लिए जोखिम रहित बनाया है। इस कार्यप्रणाली को बाकी कई क्षेत्रों में कुछ बदलाव के साथ प्रयोग में लाया जा सकता है।

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वै. गु. आ. म. में आज़ादी का अमृत महोत्सव

Drawing/Painting/Sketching Competition for Children of Employees at OADG, Koraput

Tree Plantation at OADG, Nasik

Lecture on Preventive Measure on Covid-19 to avoid its Spread and possibility of Third Wave at OADG, Lucknow

वै. गु. आ. म. में आज़ादी का अमृत महोत्सव

Lecture on Flight Safety through Quality Assurance at ORDAQA(HAL), Hyderabad

Discussion on Moving Forward from Indigenous Substitution to Design and Development of Modern Aviation Stores at OADG, Lucknow

Tree Plantation at Dett. AQAW(A), Itarsi

Lecture on Vigilance at Dett. AQAW(A), Chanda

Visit of Students to AQAW(A), Khamaria

Flag Hoisting at OAQA, Dehradun

CONFORMAL COATING AND RELIABILITY ASSURANCE OF INTRA FIRING UNIT COMMUNICATION (IFUC) PCBs OF PROJECT MRSAM (IAF)

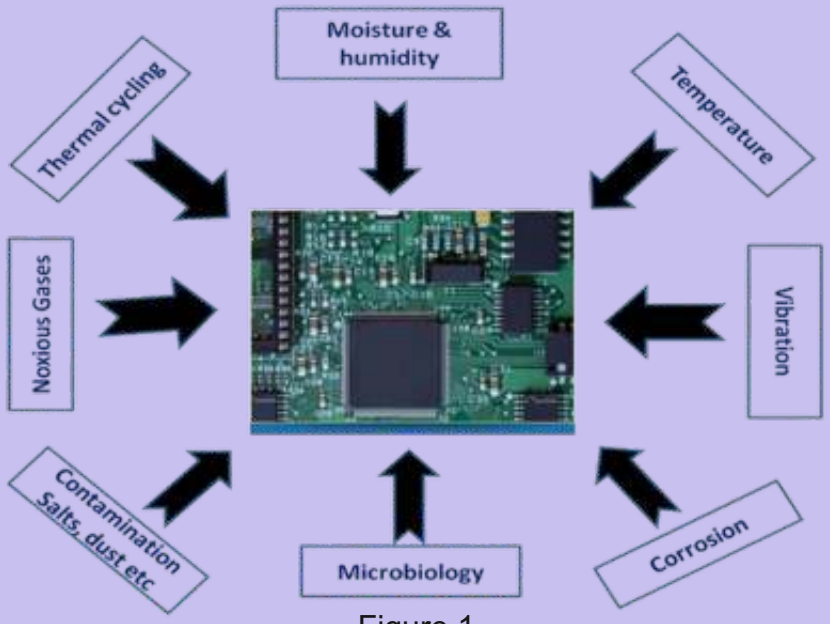

Figure 1

Shri Biswajit Choudhury
SSO-I, ALISDA Bengaluru

During design and development phases of MRSAM-IAF at RCI DRDO, the overall functional reliability of IFUC system developed at M/s BEL, Bangalore was ensured through a series of quality and reliability improvements. One such improvement was improvement in reliability of IFUC PCBs through Conformal coating during their Qualification stages. It was possible through a series of reliability tests and analysis in various climatic conditions. The objective was that the IFUC system meets the environmental specifications and serves the customer with desired reliability at user hand.

In general, the variables that primarily affect the reliability of PCBs during their life cycle are as shown in Figure 1.They are also known as common climatic loads which act as disruptive elements during PCB functioning. Since IFUC system of MRSAM-IAF project was designed for establishing communication links between Command Post and Missile Launcher, the use of microwave and EMI components in the circuitry was a necessity. But, use of conformal coating was not considered by the designer in order to avoid performance degradation in Radio Frequency (RF) boards due to restrictions in changing the dielectric properties between two lines and change in microwave frequency due to change in dielectric constants. There was also a need to house IFUC LRUs for outdoor as well as indoor applications. As a result, frequent failure of IFUC system was common and reliability issue was a concern. The issue was raised to Standing Design Review Committee (SDRC) by self as MSQAA rep and after a long deliberation, SDRC constituted a high level technical committee with MSQAA rep as a key contributor in identifying and evaluating the components vis-a-vis PCB functionality with respect to the feasibility of applying Conformal coating to the non-RF PCB areas and sealing the pure RF boards hermetically.

A detailed study was carried out, which resulted in identification of Qty- 24 PCBs for applying conformal coating out of the total Qty-44 PCBs of the entire System. While considering Conformal coating, necessary masking techniques and instructions were issued in the form of control documents. Process document was created with highlighting the components for not to be conformal coated and incorporating masking as a process stage. Following types of components were not conformal coated:

Relative Humidity			
40%	40-70%	70 - 90%	100%
Low Humidity	Mean Humidity	High Humidity	Max. Humidity
ESD danger	Smooth operation	Critical operation	Special case

Table-1: Operational viability w.r.t relative humidity

- Electromechanical components (e.g. Actuators)
- Components sensitive to additional capacitance (e.g. RF filters)
- Mating sockets, pins, test points, grounding points and connectors
- Potentiometers and variable capacitors
- Photodiodes, sensors and optical devices Open (unsealed) components (e.g. Switches & Relays)
- RF Boards (dielectrics)
- Flex part of Rigid flex
- Mounting surface and mounting hardware
- Displays
- Windows of programmable devices
- Spacers and fasteners
- EMI shields
- Mounting holes
- Components stressed by coating (e.g. Glass bodied diodes)

The necessary process document was prepared and approved at M/s BEL and the entire IFUC LRUs were rerouted through the new process flow from PCB level to System level Qualification Tests (QT). Finally, the QT got completed successfully and necessary drawings and process documents were updated and approved for smooth production. This way, the IFUC system of MRSAM (IAF) became ruggedized for operation in robust environmental conditions.

About the Author: Shri Biswajit Choudhury, SSO-I is posted at ALISDA Bengaluru and joined Service in July 2009.

Dr. Sarvepalli Radhakrishnan (05 Sept 1888–17 April 1975) was an Indian philosopher and statesman who served as the second President of India from 1962 to 1967. In India, we celebrate Teacher's Day on 5th Sept on the birthday of Dr. Sarvepalli Radhakrishnan.

"A life of joy and happiness is possible only on the basis of science and knowledge."

Role of DGAQA in Defect Investigation: Sharing the experience

Whenever the flying machines are operated, there are many defects /snags noticed by the operator depending upon the operating conditions.

These defects are necessarily to be addressed under process called Defect investigation and Failure Analysis. The prime aim of these activities is to address these issues with compliance of remedial measures to eliminate the recurrence of failure.

Defect Investigation and Failure Analysis of aero engines is very complex and safety critical. Thorough and proper investigation with appropriate remedial measures is considered to be the best tool to improve upon the quality of the product.

The basic aim of DGAQA, a prime Quality Assurance Agency basically is to ensure that, the cause of the defect is correctly established by the manufacturer/ supplier followed by necessary corrective measures to prevent recurrence of such defects in future.

The members in the DI Committee basically consist of manufacturer, designer, airworthiness agency and Quality department.

Defects are mainly attributed to

- Faulty material
- Defect occurred during manufacturing process
- Defect developed during assembly and testing
- Poor workmanship
- Fault in design deficiency
- Any Violation of operating limitations by user during inadvertent condition.

The prime tool to approach defect investigation is based on the following principle:

- What happened?
- How happened
- Why happened

Based on the above criteria, improvement measures are decided such as preventive measures and corrective action.

To approach the investigation with "What happened" it is essential to know the conditions of operation and operating envelope as prima facie and to confirm any violation to the laid down conditions at the time when the defect occurred/noticed. The verification of relevant documents and records with respect to maintenance practices being followed provides valuable information to initiate a proper investigation. This information is basically obtained from the user prior to start of the Defect Investigation.

It is very helpful for investigation, if the conditions are simulated or demonstrated when comes to point "How happened." This requirement can be achieved by subjecting the defective component to following process:

- Rig Test
- Testing on Test Bed
- Laboratory Test
- Metallographic test (NDT, Microstructure etc depends upon the nature of defect).

Shri Sachikanta Sarangi
PScO, ORDAQA(Engine)
Bengaluru.

Based on the above inputs, analysis can be done to arrive conclusively to establish the exact cause of the defect followed by appropriate corrective actions to mitigate the recurrence. Better inputs from "what happened" and "how happened" will enable the DI team to arrive at "Why Happened".

Sharing the experience of participation during various Defect Investigations, in many occasions, proper investigation is defeated/misled/inconclusive for the reasons as mentioned below:

The relevant records/documents do not accompany the defective part. In many cases duplicate log cards/ books are available because of loss of original, thereby history of the previous health monitoring status could not be established.

Incompleteness in submission of defective component along with relevant documents due inadequate guide lines available with the user.

Incompleteness in the document certification with respect to maintenance practices being followed prior to occurrence of defect.

Receipt of component with damaged condition during transportation/handling. Under such condition the actual cause of the defect remains unresolved and investigation is misled.

In the present scenario, Modular concept engines are advantageous to recover the engine by replacement of defective module with minimum loss of hours to meet the mission task. However, there are many occasions when a single module of an engine is received for Defect Investigation to establish the cause of the defect on engine component or deviation to the engine performance. This approach is not appropriate and not adequate to establish the cause of the defect encountered in the engine.

Inordinate delay by the OEM (abroad) whenever cases of defects referred for analysis by them.

Thorough Knowledge on the subject, correct and complete information on the occurrence of defect, adequacy in testing facilities are some of the basic requirement and considered necessary for a meaningful Defect Investigation.

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SAVING TIME & COST DURING OVERHAUL OF AL-31FP (SU-30 MKI) AERO-ENGINE BY REDUCING REJECTION OF LPTR BLADES

Background:

It is a matter of serious concern that Sukhoi Engine Division of M/s HAL, Koraput is not able to meet the annual target of Overhaul of AL-31FP (SU-30 MKI) Aero-engine over the years. In the production year 2020-21, it could complete Overhaul of Qty.51 Nos. of Aero-engines against a target of Qty. 65 Nos. This may seriously affect the operation of Indian Air force if it is not able to keep the fleet strength of SU-30 MKI aircraft up to the optimum level more so since they are considered as backbone of India's Defence and Offence operations. Operational preparedness of IAF is very important in the presence of very hostile neighbouring countries. The situation becomes very grim in case of eventualities like recent stepping up of tensions between India & China along the borders.

In view of the above, it is relevant to look into the causes for the delay in Overhaul of AL-31FP (SU-30 MKI) Aero-engine at M/s HAL. DGAQA Office is always supporting M/s HAL by helping them to look into possible ways of reducing the delay alongwith providing Quality Assurance coverage. As a step in this direction, we chanced upon an observation which will mainly reduce the time of overhauling process as well as its cost which will contribute in a big way by saving to the state exchequer of our developing country.

Observation:

It is found out that during overhauling of engine that a large Qty. of LPTR blades are either rejected leading to replacement with CAT 'A' blades or recommended for reworking. LPTR blades are critical components in AL-31FP Aero-engine. They are investment casted and then tip brazed, which is a long process cycle with high cost of production. Since they are working in heat affected zone, they are more prone to damages i.e. creep, thermal distortions, centrifugal and thermal stresses, which may lead to dimensional deviations.

Findings which are causing increase in time and cost of Overhaul:

As given above, if blades are recommended for rework, they go through a long process of grinding-brazing-tip brazing-grinding-bench work- dimension check. Also one blade from each rework batch taken as a test piece which cannot be used for assembly. Thus the entire process is proving costly and time consuming. If the blades were completely rejected, new CAT A blades are installed which lead to still a higher cost.

Shri Sachin Kumar
SSA(G)-OADG, Koraput

Study:

To reduce the rejection, it was decided to study and find out the root cause. On study, it was found out that the blades are being rejected or recommended for rework during dimensional check process by HAL(QC). Rejected blades are not meeting the dimension checks as per acceptance criteria of Overhaul technology.

During interaction with QC personnel, it was learnt that the acceptance criteria for the LPTR blades is different during manufacturing of new Aero-engine. On checking manufacturing technology, it was found out that different criteria are being followed for acceptance. Further it was found that, if these criteria are followed during Over Haul, the rejected blades are becoming eligible for acceptance.

Outcome:

After further study and deliberations within DGAQA office as well as with M/s HAL, it was concluded that acceptance criteria of manufacturing technology can be safely adopted during Overhaul also without compromising the Quality. It was also decided to intimate about this proposal to Original Equipment Manufacturer (OEM-Russian firm) and take his opinion. As a pleasant outcome, OEM concurred and intimated that a bulletin for the same will be issued shortly. M/s HAL has intimated that the acceptance criteria in Overhaul technology will be changed to those mentioned in Manufacturing technology on receipt of the bulletin from OEM. The above study and outcome will result in reduction in the time and cost of Overhaul thus contributing in a big way towards achieving the Overhaul target in a lesser time period ultimately meeting the requirements of the end user, IAF as per the planned schedule and also a big saving to the state exchequer.

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25 Years
(1996-2021) Rewind 1.....My QA Path

Shri A Chandrasekaran
Dir. (A/c & AeroMed)
HQrs New Delhi

I take this opportunity to share my experiences on MIG Aero engines, Aircraft and Helicopter projects while discharging my role as QA over the past 25 years and I will try to cover it up in three to four episodes over the next one year. I hope that it will be useful to all my junior officers working at various levels in different projects.

Quality Assurance is not just re-verification of stage offered by DGAQA approved HAL QC inspectors. It has many roles by itself. It ensures that the procedures are defined, established, followed, recorded and maintained for verification. QA practice is exercised with regular Spot checks, Quality Audit and Surveillance Inspection.

Let me start with the jungle - a remote place that officers are afraid to get a posting to - Sunabeda, Koraput where Russian Aero-engines are built under license and overhauled. I started as JSO and promoted to SSO-II through UPSC within six months. I was given the project overhaul of R11 and R25 Aero engines. I used to read the Overhaul procedures & inspection requirements, recommendation of DIR, RTS (Return to Shop) program etc.

Overhauled engines during testing at Engine Test Bed (ETB) are sometimes declared as Return To Shop (RTS) due to high vibration, high oil consumption, increased oil pressure/RPM fluctuation, negative slide etc. The engine will be sent back to shop with RTS program from test house.

I noticed that whenever we delegate RTS to HAL QC they do not find any abnormalities but when a snag is observed at test house this is highly impossible. So, I asked my senior officer if I can start monitoring the cases of RTS to investigate what is happening. In the first case of oil consumption, I found a copper washer missing in the assembly and lot of oil splashes inside the core engines. Second case of RTS on high vibration found that dynamic balancing machine was due for recalibration. I ensured RTS program is conducted properly and necessary corrective measures are taken to obviate such RTS cases.

The other day, I was verifying the documents at final build of R11 Aero-engine before it goes for testing at ETB. The engine was back loaded to HAL, Koraput for metal particles in oil system on Defect Report (IAF F1022). I saw DIR is finalized and concluded as “no abnormalities observed”. On verification of engine documents such as PSSR, view room report, gear box assembly report, I found that there are six different gears that were worn out and rejected. I saw IAF also sent oil samples with metal particles as per DR. Then I could guess DI Committee members did not witness and verify the parts practically before signing the DIR. I gave my remarks on stage memo as Engine not cleared for testing pending review of DIR and asked for the DIR to be reopened. I explained to CRI in detail about this DIR and he called the concerned officer who attended DI to reopen the case. Then Defect Investigation Report was reviewed accordingly. It gave me full satisfaction in my area of work.

As QA officer, walk around shop floor and see that no unauthorized work is being carried out, continuously monitoring QC activities on the shop floor, conduct surprise spot checks where OCRI stage is not defined.

There were some failures of Quill shaft in R11 and R25 aero engines and it shows non uniform wear out during exploitation. 50-hour checks were introduced as STI to help rectify the situation. During one night shift, I was leisurely verifying the documents before inspecting the aero engines for its correctness; I don't know how it came to my mind about non uniform wear out of Quill shaft at that time. I asked the shop in charge to show assembly procedure from assembling gear box to core engine built. I saw there is a torque sequence chart given in the assembly procedure. Three gangs of operators were assembling the engines on that day. I decided to ask each gang separately about the sequence of tightening procedure in a paper where only holes are drawn by me. To my disbelief none of the gangs were following the sequence that was clearly given in the sequence chart. This is over confidence on the part of the operators. Next day, I approached the Quality Head to get the sequence chart displayed in a big size at the final build area. It gave me a lot of confidence that I have made a positive impact in the job assigned to me.

On another occasion, I was carrying out visual examination of Spur gear used in Main Gear Box (MGB) of R11. REJ was written over it, and it was offered to me by HAL QC Inspector. REJ means the gear is rejected at view room. Then, I was thinking how a rejected item would, find its way into an accepted item. I realized that this was because it was not defaced and there were no procedures to do so. Immediately, I told them to deface and put it on record. I told Quality Head to make necessary amendment in inspection manual for defacing of rejected parts. I was then fully satisfied with my findings and corrective action taken by the contractor.

One day I proved that the customer rep i.e., DGAQA can also bring out some financial discrepancies by putting little common sense. As a part of store inspection, Stores were offered to CRI for clearance for the issue of Q423 before dispatching to the User. One of the Store, a 6x6 size, S/S Rollers, for bearing assembly, in Qty 12000 Nos offered in packing under lubricated condition and total cost of 1.2 Cr approx, then I calculated cost of each bearing comes approx Rs.1000! I wondered how it is possible that such a small item appears so expensive. Then I decided to check back the parent document price catalogue coordinated by User with Purchase dept along with QC inspector. Then realized from the documents that originally the cost was Rs.100/- and it is written as Rs.1103/- and costing to Rs. 1.2 Cr approx instead of just Rs.12 lakh. Immediately, I brought the same discrepancy to User and asked them to recertify entire price catalogue vetted by them. It gave me another joyful time as customer representative.

Like this so many other revelations brought lot of changes as Quality Improvement during my tenure. I regularly read QCIs, DIRs, SBs, IMBs etc., to keep myself afresh. I don't hesitate to write letter and put it on records, that is now called as enforcement action level 1. I served more than 7 years at OCRI, Koraput and I had nice time with work environment as well as conducive climate. I encourage our officers to volunteer for posting to Koraput to acquire Aero engine domain expertise.

About the Author: Shri A Chandrasekaran Dir (A/c & AeroMed) is posted at HQrs New Delhi and joined service in Nov 1996.

MAINTENANCE ISSUES OF AGEING FLEET

Shri Santa Kriti Lahiri
SSO-II, OAQA Barrackpore

Indian Military aviation dates back to pre WW-II era under the British Royal Air Force, who set up their auxiliary "Indian Air Force" in October 1932. The small air force section started with few air warriors and four Westland Wapiti biplanes. At present IAF is the fourth largest and one of the strongest forces in the world. With time, Indian military aviation has seen the entry of Army, Navy and Coast guard with their own flying wings. All the four services are using fixed wings as well as Rotor wings in different roles. The fleets are a mix of old, mid aged and state of the art (advanced) aircrafts/helicopters. Today we will talk about the aged / old fleets and its hurdles in maintenance.

The aircraft Manufacturers, design modern aircraft with a prescribed lifespan, or 'design life' of certain years. The lifespan includes a specified number of flight hours, flight cycles, landings or calendar year, which allows the aircraft OEM, owner and operator to expect reliability in terms of service, components and function for the set period of time. However, in reality aircraft last for both shorter and longer periods than the specified time. This is the 'Economic Life' of the aircraft .However, the aircraft's economic life can be stretched to optimum usage or as long as the cost of maintenance, fuel, safety and other operating expenses make it viable.

Our Military squadrons are still using aged fleets like MiG-21, Chetak/Cheetah helicopters, AN 32 transport aircraft and the like. As the aircraft gets older Heavy Maintenance requirements, service downtime and fuel costs increases. Till the availability of replacement fleets, these aged fleets will continue serving the nation and thus should be airworthy by any means.

Some hurdles in maintenance of aged fleet:

Wear and tear:

Two important factors that aggravate aircraft ageing are corrosion and fatigue. While these aspects generally affect the aircraft structure, they can also damage wiring, flight controls and other components. The rate of fatigue depends on the type of operation an aircraft/helicopter is subjected to. Aircrafts experience heavy aerodynamic load and vibration during sorties. With time structure tends to go weak or loosen or cracked due to stress.

Corrosion is the biggest enemy of aviation which affects the aircraft structure and occurs as a result of the chemical or electrochemical degradation of metal over time. It can also affect electrical connectors and flight control cables. Corrosion is more prevalent in marine and coastal environments with high humidity and salt water.

Heavy Maintenance Requirements:

Proper Maintenance programme and continual monitoring of ageing aircraft is the only way to maintain aged fleets. The number of snags in aged fleet will be more compared to newer aircraft and repairs that are carried out with a view to extending an aircraft's longevity also has a cost factor, supply of obsolete/old parts/components, more fuel consumption for snag rectification sorties, manpower requirements, logistical issues and the like. Spares inventory will need to come under

constant review to ensure that sufficient supplies of rotable and consumable parts are on hand for the increased amount of maintenance needed. Repetitive snags become part of the daily inspection and rectification. Oil leakages often disturb the planned schedules of the day.

Modifications and Up gradation:

All aircraft age differently and the aircraft's type, flight operation and geographical location will result in timely modifications or up gradations and for reason of safety or flight requirements airworthiness directives, mandatory service bulletins, modifications generally tend to increase in frequency and magnitude with age. Implementing the above is time taking and increases downtime.

Quality :

In aged fleet, recurrence of snag, premature withdrawal of components, Defect Investigation increases and it directly reflects the state of Quality of components. Leakages and seepages become harder to check. In order to balance the serviceability and quality, QA procedures become stricter, detailed and time taking. Trouble shooting and sorting out issues becomes complex/ challenging with increase in age of component. Line mechanics/ technicians may require more detailed training on troubleshooting defects specific to older aircraft, and may need to become acquainted with heavy maintenance checks to gain experience of the more detailed inspection requirements.

No matter how old fleets we are having in military aviation, important part is that they are still serving the nation with glory and pride. On time maintenance, though tough in aged fleets ensures greater performance of aircraft each time and saves downtime.

About the Author: Shri Santa Kriti Lahiri, SSO-II is posted at OAQA, Barrackpore and joined Service in March 2011.

Dr. APJ Abdul Kalam
(15 October 1931– 27 July 2015)

Dr. Avul Pakir Jainulabdeen Abdul Kalam (15 October 1931– 27 July 2015) was an Indian aerospace scientist who served as the 11th President of India 2002 to 2007.

"You were born with wings. Don't Crawl. Learn to use them to fly and fly".

OTP based "Issue Monitoring System" - Office Application for DGAQA

Introduction:

Since Feb 2020, COVID-19 virus infection has taken a form of pandemic taking whole world in its grasp and making each and every country to suffer, each and every human being to mourn for loss of his/her family members or relatives or friends, neighbours, colleagues etc. In this period, government offices and its staff coming under emergency services had taken a major hit these fatal losses.

DGAQA is one of such services in the nation, which has to be present on the field of work, participating in the uninterrupted supply of airborne stores and systems, ensuring the requisite quality and adequate quantity for the users.

Technically, person to person contact as well as physical contact with common stores, facilities, equipments, files & stationery etc. being utilised in the office environment, has been the main cause for spread of this deadly COVID-19 virus.

Obviously, there was a vital need felt for a system of communication and work within the office, promising minimum or zero contact between the individuals in the office.

I am delighted to state that, I am able to make a software "Issue Monitoring System" for facilitating official communication between officers and staff for monitoring of various official issues and circulation of office DAK within the office, fulfilling the above mentioned objectives at a considerable level.

Benefits from the Software:

- Highly effective and efficient official communication system with minimum or Zero person to person contact between the officers and staff.
- OTP based user identification can be enabled.
- No need of LAN networking in the office.
- Fulfilling all the cyber-security requirements.
- Reporting facility can be made in the software from various aspects.
- Original letter is secured in file with Tech-Coord whereas all action is performed on the basis of soft copy. The Action-sheet obtained from the software can be attached with the letter after closure of issue.
- Uses "nic.in" email environment with fully readymade security.
- Software can be used at all DGAQA offices with equal ease.

Shri AM Abhyankar
SSO-I-OADG, Nasik

Present Status of the software:

Software has been demonstrated at OADG Nasik for ADG, OADG Nasik and its staff.

It is presently under trial and validation.

It is intended to put to use with permission from competent authority at the earliest.

Conclusion:

Thus a basic framework and model of much awaited paperless office system software which inherently fulfils the safety requisites of keeping adequate distance from each other in work areas in times of such hazardous COVID-19 pandemic, is available for DGAQA which once cleared from Cyber Security aspects can be deployed at all field establishments of DGAQA and same can be used with equal ease. Personnel can be trained in short time to work on this software. This software will certainly enhance the effectiveness and efficiency of the organisation as a whole.

About the Author: Shri Anurag Mukund Abhyankar, SSO-I is posted at OADG, Nasik and joined DAQAS Service in July 2009.

Appointments, Promotions and Superannuations during Jul-Sept 2021

Shri Ajay Sagraya

Shri Ajay Sagraya took over the charge of ADG(N & CZ), Lucknow on 30 July 2021. He joined DGAQA in DAQAS Cadre in Feb 1993.

Shri Pravakar Mishra

Shri Pravakar Mishra , Director Tech-Coord & Cyber Security HQrs DGAQA superannuated on 30 Sept 2021. He joined DGAQA in DAQAS Cadre in Mar 1994.

Smt Usha Ravi

Smt Usha Ravi ,Regional Director ALISDA, Bengaluru superannuated on 30 Sept 2021. She joined DGAQA in DAQAS Cadre in Aug 1997.

Superannuations:

Sl. No.	Name	Designation and FE/ Unit	Retired on
1	Shri G Shiva Prasad Rao	SSO-I, ORDAQA Bengaluru	31 Aug 21
2	Shri Sridam Chandra Hanra	SSO-I, OAQA, Barrackpore	31 Aug 21
3	Shri G D Pendam	Chargeman, Dett. AQAW(A) Chanda	31 July 21
4	Smt. Rakesh Sharma	Sr Translator, ORDAQA Ghaziabad	31 Aug 21
5	Shri R K Dwivedi	Office Superintendent, Dett. AQAW(A) Kanpur	30 Sept 21

Promotions:

Sl. No.	Name	From	To
1	Shri Rahul Gupta	Jt. Director, TC & CS, HQ DGAQA	Regional Director, ORDAQA Ghaziabad
2	Shri Mahesh C Kalasad	PScO, ORDAQA(ARDC), Bengaluru	Director, GSE HQ DGAQA
3	Shri Mahendra Prasad	PScO, OADG (N & CZ), Lucknow	Director, ORDAQA Korwa
4	Shri J B Durga Prasad Naik	SSO-II, OADG Koraput	SSO-I, OADG Koraput
5	Shri Daya Shankar Pathak	SSO-II, Dett. AQAW(A), Itarsi	SSO-I, Dett. AQAW(A), Itarsi
6	Shri Manoj Kumar Saxena	Office Superintendent, OADG (N & CZ), Lucknow	Admin Officer , ORDAQA Bengaluru
7	Shri RBP Verma	Jr. Translation Officer, Dett. AQAW(A), Dumdum	Sr. Translation Officer, ORDAQA Bengaluru

New Joinings/ Appointments:

Sl. No.	Name of Officer	Designation	Date of Joining	Discipline	FE / Unit
1	Md Azhar	SSO-II	10 Aug 2021	Mechanical	OADG, Koraput
2	Shri Shivam Shukla	LDC	28 Aug 2021	——	ORDAQA, Kanpur
3	Shri Surendra Singh	MTS	26 Aug 2021	——	MSQAA HQ New Delhi

Photo Gallery of DGAQA

माननीय संसदीय राजभाषा समिति की पहली उप समिति की निरीक्षण बैठक

माननीय सांसद श्री हरनाथ सिंह यादव द्वारा वै.गु.अ.मनि. में हिंदी में किए गए कार्य का निरीक्षण

Visit of Rear Admiral S N Alamanda VSM Addl DGQA(WP) to DGAQA HQrs

Visit of RD RCMA, Koraput Shri Benudhar Sahoo, Sc. F to DGAQA HQrs

Visit of GM HAL AOD Shri Saket Chaturvedi to DGAQA HQrs

Farewell of Shri Pravakar Mishra, Director Tech-Coord & Cyber Security HQ New Delhi on his superannuation

Photo Gallery of DGAQA

DG, AQA Shri Sanjay Chawla lighting the Lamp on the auspicious occasion of DGAQA Raising Day at DGAQA HQrs

DG, AQA, ADG, AQA & Other Dignitaries on the auspicious occasion of DGAQA Raising Day DGAQA HQrs

DGAQA Group 'A' Probationary Officers with DG, AQA & Director, ARDE after Valedictory Function of Induction Training

Momento by Director, ARDE to DG, AQA at ARDE Pune during Valedictory Function of Induction Training of DGAQA, Group 'A' Probationary Officers

Farewell of Captain (IN) Sujay Kapoor Director, MSQAA HQrs New Delhi

DG, AQA & Team DGAQA at New Office Location Defence Complex KG Marg Connaught Place New Delhi

3 The Role of Audits in Govt Quality Assurance

Shri P K Sethi, DG(Retd.), DGAQA

दूरस्थ निरीक्षण के द्वारा वैमानिकी गुणवत्ता आश्वासन **6**

श्री ओमपाल सिंह आर्य
क.वै.अ., क्षे.नि.का.वै.गु.आ (ओवरहाल), बेंगलुरु

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