वैमानिकी दर्पण

DGAQA MAGAZINE ON AVIATION QUALITY ASSURANCE

MAKE IN INDIA

स्वच्छ भारत
एक कदम स्वच्छता की ओर

आत्मनिर्भर भारत
ATMANIRBHAR BHARAT

ENSURING FLIGHT SAFETY THROUGH QUALITY ASSURANCE

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MESSAGE

I am glad to note that Directorate General of Aeronautical Quality Assurance is starting its periodical Technical Magazine on its 66th Anniversary for knowledge/experience sharing among various DGAQA FE's and other stake holders viz DPSU's, DRDO Labs, OF's, Service HQrs, etc.

DGAQA has been in the forefront to create conducive environment for its stake holders and has been taking lead to transform its function towards "Minimum Government and Maximum Governance". I am confident that dedicated hard working and professional competence of DGAQA will have excellent result towards "Atmanirbhar Bharat"and "Make in India" Mission.

I hope that DGAQA magazine will be an interactive platform and medium of connect between DGAQA officers and its stake holders. It will help to keep the readers up-to date with the latest issues besides providing opportunity to showcase their creativity and expertise.

On my behalf I convey my best wishes and compliments for the grand success to this highly Technical and interactive Magazine.

(Raj Kumar)

Place: New Delhi
Dated: 17th August, 2020

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सत्यमेव जयते

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It gives me immense pleasure to know that DGAQA has planned to start its periodical Technical Magazine and its first edition is about to release on their 66th Foundation Day.

All of us can be proud to be part of Indian Defence System and have very significant role towards our motherland. DGAQA has been in forefront to support Defence Aeronautical stores production and developments activities with conformity to the highest standards required in the field of Military Aviation and ensuring QA during Indigenization under Make in India and Atmanirbhar Bharat.

Departmental magazine is one of the tools for not only projection of its achievements but also interaction between the units. I feel that it is a good initiative and be continued in long way in future. I congratulate DGAQA and the Editorial Team for publishing Vaimaniki Darpan (वैमानिकी दर्पण) Magazine and wish for a very informative and useful editions.

(V L Kantha Rao)

सत्यमेव जयते

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सन्देश

वैमानिकी गुणवत्ता आश्वासन महानिदेशालय की 66 वी वर्षगांठ पर त्रैमासिक पत्रिका "**वैमानिकी दर्पण**" के प्रथम अंक के प्रकाशन पर अपार हर्ष का अनुभव हो रहा है ।

इस महानिदेशालय एवं अधीनस्थ कार्यालयों द्वारा किये गए उत्कृष्ट तकनीकी कार्य जो कि इस महानिदेशालय को निरंतर उच्च पायदानों की ओर आगे बढाने में प्रयासरत हैं, उनके बारे में यह पत्रिका सभी सम्बंधित संगठनों को सूचना प्रदान करने का माध्यम होगी तथा मुझे आशा है कि यह पत्रिका सभी पाठकों के लिए प्रेरणादायी होगी ।

मैं पत्रिका के प्रकाशन से जुड़े सभी संपादक मंडल एवं रचनाकारों को अपनी शुभकामनाएँ देता हूँ और पत्रिका की सफलता की कामना करता हूँ ।

(चंद्राकर भारती)

S Chawla
Director General, AQA

On the occasion of 66th Anniversary of DGAQA (erstwhile DTD&P (Air), 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 'Defence Aviation QA' thereby ensuing Aerospace safety.

In the years gone by we have achieved number of milestones viz Development of Quality Management Systems for Military Aviation Firms i.e. DGAQA-AFQMS-2018 incorporating latest International standards and inputs based on our field experiences.

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 production under 'Make in India' & Atmanirbhar Bharat' missions.

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 'Atmanirbhar Bharat' mission as per the directions of DDP/MoD.

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.

On this 66th anniversary of DGAQA, we are starting a technical magazine "वैमानिकी दर्पण" for the benefit of DGAQA personnel and other stake holders in Defence Aviation. I request DGAQA personnel and the veterans to share their valuable experience in bringing out articles on significant achievements - lessons learnt during Stage Inspection, Quality Audits (Product/Process/ System), Spot checks, DI's, Accident/Incident Investigation etc for the benefit of all

On this 66th anniversary, let us resolve to continue performing our duties with utmost dedication. I am confident that our collective capacity to achieve excellence and our commitment will take DGAQA to greater heights.

जय हिन्द !

(S Chawla)
Director General

LESSON LEARNT-HARD WAY

Ranajit Mohapatra SSO-II

On 4th Sep 18, MIG-27 UPG aircraft TU-643 was authorised to fly an Aero engine check sortie after Jet Pipe change. The profile to be followed was full performance Airframe and Aero engine checks after the change of jet pipe. The ground operations were normal. After getting airborne and switching off reheat, Aircraft started pitching up and rolling to the right. The pilot controlled the flight by countering the pressures on controls and reported the same on R/T. The initiation of the problem was due to the heaviness of the control. He selected damper off but the situation did not improve.He called off the exercise and initiated turn on to downwind for landing. As the turn progressed he heard two distinct noises from the rear of the aircraft and he lowered the undercarriage and flaps. The aircraft pitched down abruptly after lowering of undercarriage and flaps.

The pilot engaged reheat as velocity vector crossed 10 degree on HUD and the speed was 400kmph.On selecting reheat, through peripheral vision he saw a flash in the rear view mirror. On looking again, he could not ascertain the cause of the flash or any abnormality. At this stage the aircraft flicked to the left. The altitude at the time of flick was 1.1 km. He tried getting wings level to the nearest horizon but could not

roll and ejected at 700m (approx).He was safely recovered and a Court of enquiry was ordered to investigate this CAT-I accident.

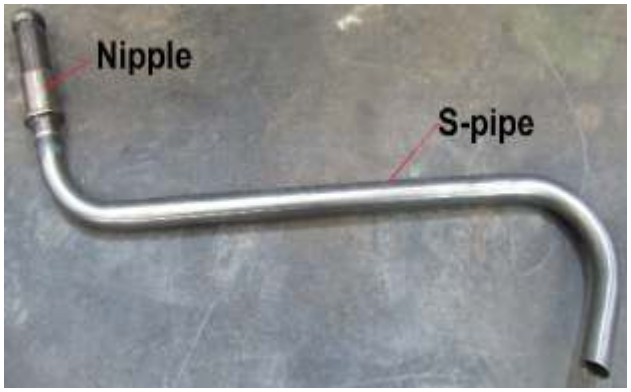
The prima facie witness on the ground has reported to have seen fire along the surface at the rear of the aircraft. Also few metal pieces of the aircraft skin and component found as far as 600mm away from the main wreckage. Pilot has also reported engine overheat warning, hence it was presumed that the engine may be the cause of accident.

Engine History: This Aircraft Aero Engine R-29B was manufactured at HAL Koraput and was inducted into service in1992. It had completed 1258:54 Hours since new and 151.56 Hours since last overhaul at HAL (KPT) prior to CAT-1 accident.

Preliminary investigation & Findings

After thorough inspection the rep of DGAQA has brought out the following:

(I) During take off nothing abnormal was noticed or reported by either the external agencies or the pilot. Also the After Burner (AB) flame seemed to be absolutely normal. However at the time of switching off reheat, fire warning was recorded in the FDR for 7/8th of a second. Immediately after switching off reheat he felt abnormal control forces on the stick and rudder. The pilot has also reported seeing of flash in the rear view mirror on engagement of AB for second



time. Jet pipe Sl.No. 4839b was withdrawn from A/C and replaced by the jet pipe Sl.No. 92036 just prior to the eventful sortie because of crack.

(ii) On detailed visual investigation of the removed Jet pipe Sl.No. 4839b melting was noticed at 12 0' clock position which was misjudged as a crack by ground crew. Rep of AQA has opined that the burning was due to localised torching effect resulting in damaged heat shield and outer casing. Similar type of damages were also noticed on the jet pipe of the incident sortie.

(iii) The evidence of damage to both the jet pipes indicates the existence of similar conditions in the eventful sortie and prior to that keeping an eye on the above findings the Court has opined the burning may be due to fuel leak from the after burner manifolds .**The metal pieces from the burnt area of both the jet pipes and all the three after burner fuel feed pipes and were sent for lab investigation to NAL, Bangalore. Burnt pieces of control rods were sent to DMRL.**

MICROSCOPIC VIEW OF FAILED WELD SEAMSHOWING TWO BEAD FORMATION

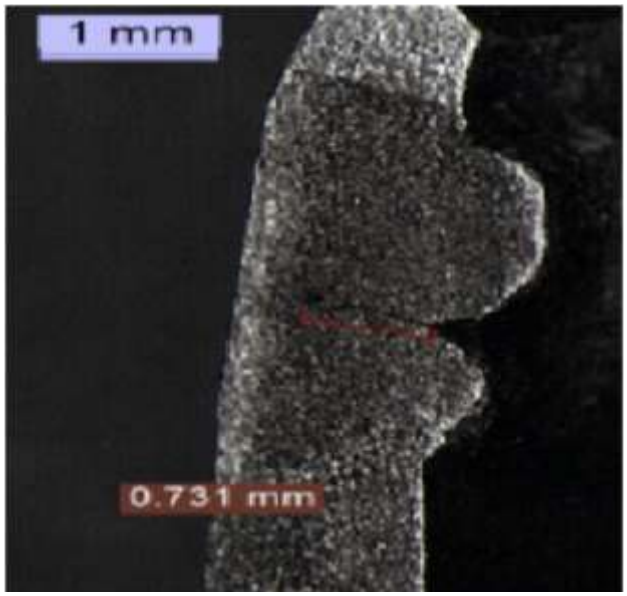
Fact finding and the stalemate:

(i) **Analysis of damage to the jet pipes**: The parts of the jet pipe sent for investigation showed melting and burning of sheet metal in localised region on both the jet pipes.

(ii) **Analysis of burnt pieces of control rods:** The failure analysis report of DMRL indicated that massive hot gas leak had damaged the control rod and led to loss of flight.

(iii) **Analysis of after burner manifold fuel feed pipes: Fractography study confirmed fatigue fracture at the weld-nipple interface of 2nd row feed pipe (FFP) of the after burner**

manifold. The fatigue crack generation was because of the manufacturing deficiency in the weld joint of the nipple and S- Pipe. The same



was clearly evident as two bead formation in the weld area. This crack has eventually led to fuel leak from the fuel feed pipe.

The crack on weld seam of fuel feed pipe, which delivers 60% of the total fuel of the after burner has resulted in fuel leak from the second row manifold. The pressures being highest in max reheat regime, the leak has been converted to a high velocity torch with high temperature directly impinging on the anti-vibration shield of jet pipe in AB, damaging the anti- vibration shield, outer casing of jet pipe and the heat shield of aircraft structure. The hot gases from the jet pipe have continued to escape upwards and outward through the damaged portion and have adversely acted upon the bell crank linkages of both the port and starboard stabilisers. However, at the same time the reheat was disengaged by the pilot that led to the stoppage of flame and thus the recording of fire was only for less than a second. The hearing of abnormal noise by the pilot twice during the turn was due to the structural failure of the components. The engagement of reheat for the second time to control the stalling of aircraft had further aggravated the situation.

The welded seam on fuel feed pipe of 2nd row manifold has developed a crack which has conclusively been attributed to deficiency of weld process at the time of manufacturing and inadequate checking process in the OEM overhaul technology. In addition, the symptoms indicated in the form of damage to the withdrawn jet pipe were incorrectly diagnosed a burnout case as crack.

Prevention Action: DGAQA has undertaken a detailed audit on the existing welding technology, weld flaw rectification methodology and associated NDT checks at HAL for all the projects including R-29b and following measures are implemented to avoid recurrence of such defects:

(i) The procedure of X-Ray in two mutually perpendicular planes to improve probability of crack detection in place of single shot on weld joint of pipelines were implemented in totality for all the projects.

(ii) The sensitivity of X-Ray has been increased for the weld joint from 0.6 to 0.4.

About the Author: Shri Ranajit Mohapatra, SSO-II is posted at OADG Koraput. He joined DAQAS Service in 2017.

AIR ARMAMENTS QUALITY ASSURANCE METHODOLOGY

Jitendra Kumar, ADG

Air Armaments are basically air launched system used in Military aircraft for different applications. Armament system is the firepower of the war machine and is generally single shot device. Thereby accuracy, reliability and lethality associated with it, is of paramount importance.

DGAQA is the AHSP for air armaments and discharges its' Quality Assurance functions through Field establishments under (Armament Directorate) located at various places viz., Khamaria(Jabalpur), Kirkee(Pune), GCF(Jabalpur), Muradnagar (UP), Kanpur(UP), Bhandara(MS), Ambajhari(Nagpur), Chanda(MS), Sub-Dett(Delhi), Itarsi(MP) and Dumdum(Kolkata). Additionally, guided missile and it's subsystem are dealt at ORDAQA (GW&M), Hyderabad and MSQAA.

MSQAA (Missile System Quality Assurance Agency) is a tri-service unified unit under Administrative & functional control of DGAQA for Quality Assurance of all indigenous missile systems. Whereas, SSQAG (Strategic System Quality Assurance Group) functions under administrative control of DGAQA.

The test facilities available at these DGAQA field establishments are adequate for complete technical evaluation of the Air Armament stores.

Presently, various aircraft bombs; for e.g.,

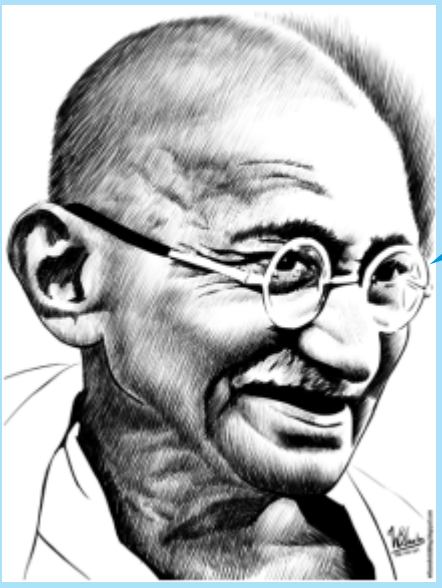
250kg(Pre-Frag), 450kg(HSLD & Pre-Frag) , 1000lb, 100-120kg(OFAB/Pre-Frag), Gun ammunition (23mm/30mm Ghasha/Aden) and 68mm Rocket (HE/HC/Inert) are being regularly supplied by Ordnance Factories to the IAF, Army Aviation and Indian Navy under Quality Assurance from DGAQA.

Additionally, the air armament stores include various power cartridges which utilises the explosive shock waves for actuating mechanical sub-systems instantaneously (nano-seconds to mili-seconds). Example for such systems include Seat ejection mechanism, Detonating cords, Engine starters, Fire extinguishers, Signalling, Flare launching, gun recocking, smoke generation, munition release, fuel tank dropping, canopy severing, etc. For imported Air armament stores, DGAQA performs mandated QA functions during FET, PDI and JRI.

DGAQA also participates in all the development activities of Air Armaments including explosives alongwith stake holders i.e., RCCMA(AA), ARDE and HEMRL(High Energy Materials Research Laboratory). The development cycle includes vetting of ASQR (Air Service Qualitative Requirement), participation in PDR/CDR/Developmental trials/field trials (at TBRL/ITR/PXE, etc.)/Qualification trials (including environmental trials as per JSG 0102) and user trials. On successful development of the store, DGAQA associates with stakeholders during ToT (Transfer of Technology) to probable manufacturer for smooth transition from development to production.

To ensure Quality Commitment by Suppliers & Manufacturers of Air Armament Stores, DGAQA performs regulatory functions as a Quality Assurance Authority through its Field establishments. Ordnance Factories are producing most of these stores and Inspection function is also performed by OFs under Transfer of Inspection Responsibility (TOIR) framework. DGAQA exercises effective control on Quality of these stores through random sampling, witnessing the proof, final sentencing after scrutiny of the records, spot checks and Quality Audits. Similarly, MSQAA has also been providing QA coverage to Missile systems produced at DRDO labs, DPSUs, OFs and various private work-centres.

About the Author: Shri Jitendra Kumar, ADG(HQrs) joined DAQAS Service in Feb 1992.



A customer is the most important visitor on our premises. He is not dependent on us. We are dependent on him. He is not an interruption of our work. He is the purpose of it. We are not doing him a favour by serving him. He is doing us a favour by giving us the opportunity to do

Mahatma Gandhi in a speech in South Africa in 1890

ONLINE INSPECTION MEMO: CHALLENGES/ OPPORTUNITIES

Mahesh C Kalasad,
PScO

The Online Memo System was initiated for the first time and implemented successfully at HAL (Helicopter) Div as ABACUS-Aircraft Build And Certification User System) in 2012 at HAL (Helicopter Division) Bengaluru. Subsequently a different version of Online Memo System was initiated and implemented successfully at HAL MRO-Helicopter Division during the year 2014.

Based on the above experience and HQ, DGAQA directive; the Online Memo System at HAL (ACD) implemented successfully at HAL (ACD) Div in 2019-20. Online memo system is now fully in operational for all the predefined stages of ORDAQA(ARDC) at HAL (ACD) since from Feb 2020.Implementation of on line memo system at flight hanger at HAL (ARDC), is under progress.

Benefits of Online ORDAQA Memo System

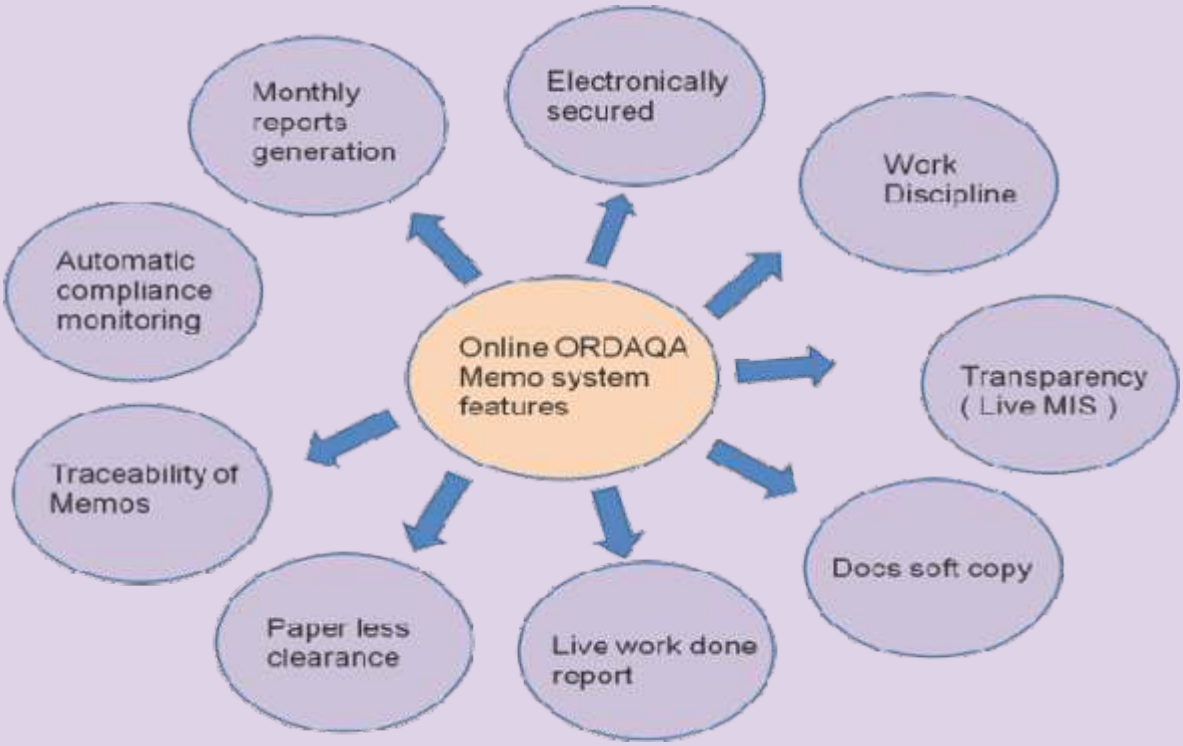
- Retrieval of data at finger tips at any time.
- Electronically secured system tracked by Unique User IDs.
- Configuration management throughout life cycle.
- Transparency – Live Information to all stake holders of HAL & DGAQA.
- Work Discipline & Accountability-To-Do-_List alerts generation & Time management.
- Paperless clearance of ORDAQA/ Non–ORDAQA/ Optional stages (Go Green Policy).
- Compiling the critical Observations of ORDAQA and its follow up.

Rework, attending/clearance of stages on real time and help in effective monitoring of activities, Monthly report generation, traceability and retrieval of data at finger tips at any time, compliance of "Go Green" policy etc. which is schematically given below.

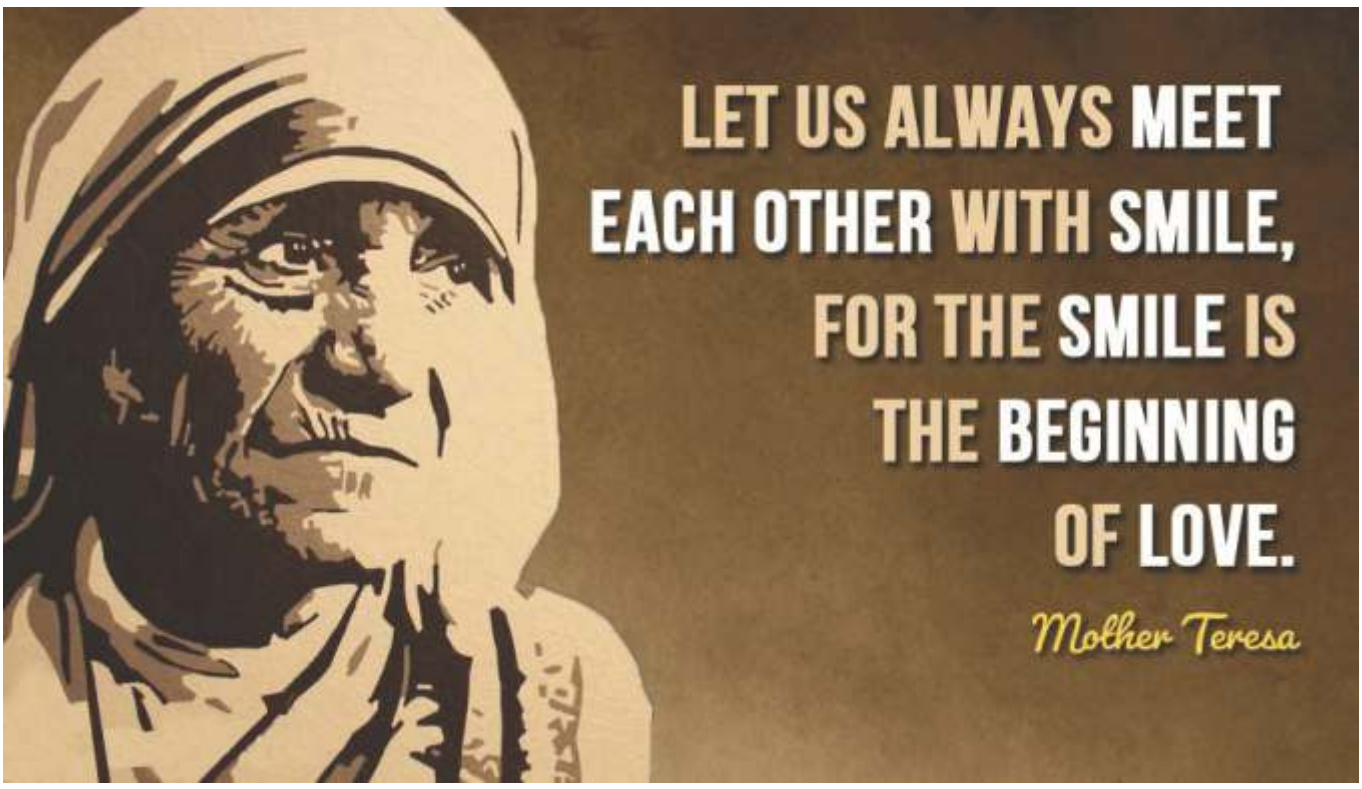
Future Challenges / Opportunities for improvement for online system:

- Efforts on Implementation of digital signature in Online Memo system.
- Summary report with PDF option in Online Memo system.
- Online document monitoring management system.

Online Snag, DQRC/ DI status, Calibration details monitoring system.



About the Author: Shri Mahesh C Kalasad, PScO, ORDAQA (ARDC) Bengaluru, joined DAQAS Service in 1999. .



STAYING POSITIVE IN A COVID 19 ENVIRONMENT

Gp Capt (TS) DB Roy

1. Today, if we contemplate on the present situation and environment then it appears that not only India but the whole world is facing a daunting challenge as far as survival of human race is concerned. It appears that we are apparently silent spectators to this pandemic. But such a situation only is a challenge to prove our mettle. Let us all collective resolve and achieve the target of defeating Covid-19.

2. Covid-19 challenging environment involves protecting oneself and achieving our organisational goal. This involves maintenance, security and protection as pillars. The Indian Air Force (IAF) took the initiative in transporting medicines in far flung and remote areas in India. This was at a time when there was complete national lock down with no vehicular, air and rail means available. The IAF also did a flypast over hospitals as a gesture of solidarity of front-line air warriors with the Corona warriors (Doctors ,nurses , other hospital staff).

3. Here in Ordnance factory Bhandara (which is primarily an explosive and propellant manufacturing factory,) in this present emergent situation understanding its social responsibility started producing hand sanitisers. This was distributed to Indian Railways, Bhandara Zilla Parishad, hospital etc. At the same-time, production of explosives and propellant was also commenced.

4. Strict adherence of Covid-19 SOP involving implementation of quarantine and creation of a quarantine centre within the Ordnance Estate itself thereby providing a facility in the vicinity. Following "Social Distancing as a norm and carrying out all activities with due adherence to safety. In this testing time, it is a challenge to remain patient and be emotionally stable. We need to join hands

(not literally but put collective efforts) and work for national interest.

5. In this Corona times one can get influenced by negative thought process. Negative emotions is a state when good thought of the mind that is hope, good fortune , confidence ,and courage all get curtailed and there place is taken by fear, tension, discouragement . In this corona times, people are getting more worried which they cannot share with anybody. It is these negative thoughts from which we must save our self and live our life fully.

6. In this testing time the first thing we must remember," When the going gets tough, the tough get going." Every dark night is followed by a bright morning. We should constantly remind ourselves that there is always a ray of hope in the bleakest situation. In order that the virus, social distancing etc do not restrict the pace of our life, let us resolve to be more disciplined and let us adapt to these new restrictions/precautions. With these restrictions, our going out of house has been restricted. "Work from Home" is the new reality. In this trying times, regular exercise, maintenance of health and a silent sound mind and motivating oneself to stay happy as much as possible. We must now try to enjoy nature, sunrise and sunset, sunny day and rains. We can take care of plants. The more we will remain close to nature, the more happy we will be. We must always stay in touch with friends and must talk with them on phone without being isolated. If feasible one must try to assist people beyond our acquaintance. This will give us immense satisfaction and will give a new meaning to our life's. There could be some people who have been confined to their house for nearly three months and working from home. In these COVID times, people are trying to be more productive and make life more useful. Friends during these times have created a network while staying at home.

7. This has assisted many migrant workers to reach their homes. They have also provided food to the needy. This corona times has given us a chance to be more useful to society. CORONA Times has proved that mental strength of the human mind is infinite and by supporting each other, we can overcome any eventuality.

About the Author: GpCapt (TS) DB Roy is IAF officer posted Detachment AQAW (Armament), DGAQA Bhandara, Maharashtra.

DGAQA

Mission

"To transform and perfect the mechanism of DGAQA's regulatory functions so that all those involved, do the right thing, first time and every time."

Vision

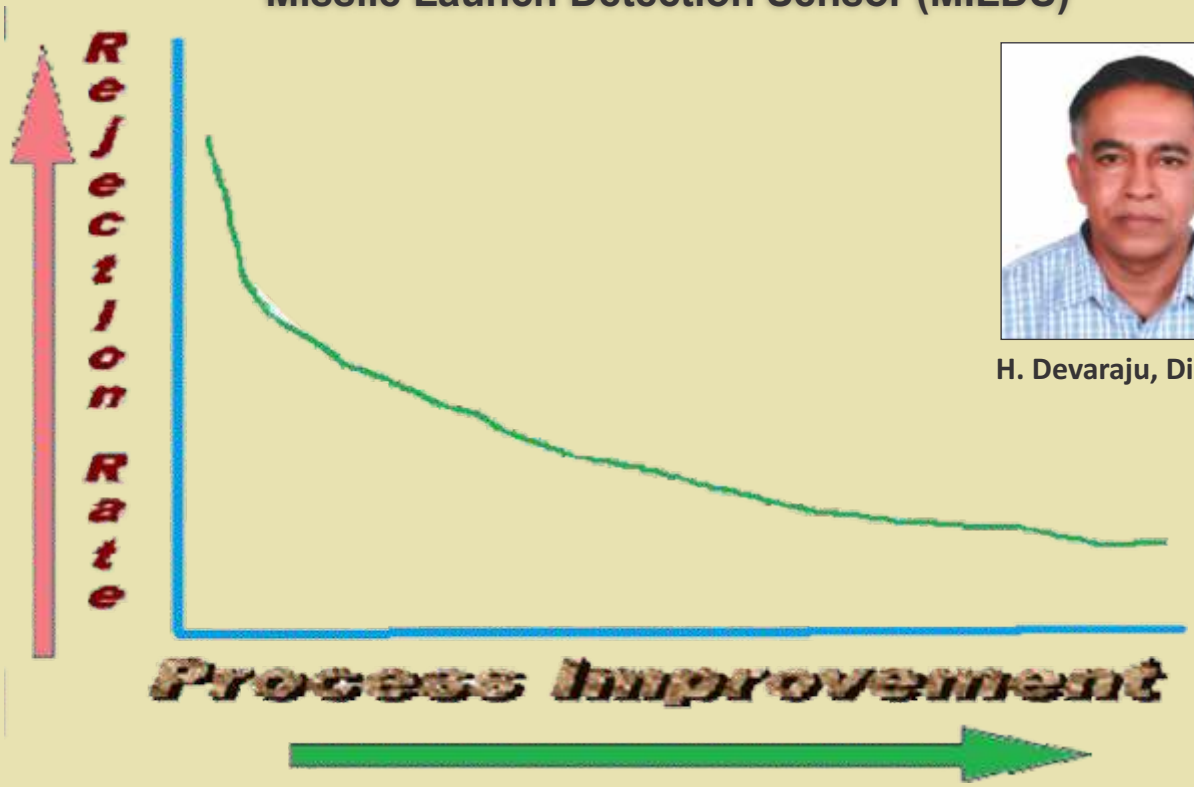
"To create and sustain an environment of mutual trust and 'Self Control' amongst the various agencies involved in development / production of Aviation products for Defence."

VALUES

- Quality is our heritage
- Integrity is our character
- Technical Competence is our strength
- Value addition is our contribution
- Honesty is our Hallmark
- Mutual trust is our work culture
- Accountability is our watchdog

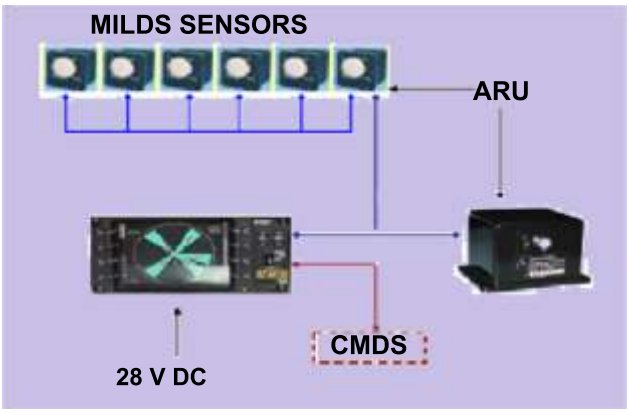
REJECTIONS REDUCED BY PROCESS IMPROVMENT:

Missile Launch Detection Sensor (MILDS)



H. Devaraju, Director

1. The Missile Approach Warning System (MAWS) is a passive system for airborne applications, used to sense the Ultra Violet (solar blind) part of emission from a missile exhaust plume. It detects and declares oncoming missiles towards the aircraft, discriminate it against environmental clutter, indicate the threat information to the pilot through audiovisual indication and initiate adequate counter measures. MAWS consist of the following LRUs:-



Missile Launch Detection Sensor (MILDS) – 6 Nos.

Avionics Grade Control & Display Unit (AGCDU) – 1 No.

Altitude Reference Unit (ARU) – 1 No.

2. **Missile Launch Detection Sensor (MILDS).** It is a critical LRU of MAWS. M/s BEL out sourced manufacture of MILDS to M/s ADTL, Bangalore having production ToT from M/s Airbus, Germany. The unit has optical sensors and three types of PCBs as below:

(a) Pre-processor board. (PP)
(b) Main Processor Board (MP).
(c) Power Supply Board (PS).

3. **Process Improvements.** There were significant initial failures and to mitigate the same, quality measures like process validation and quality audits were planned. The following

critical stages were included in the Process Manufacturing Document (Production Route Card (PRC)):-

(a) Stencil used for solder paste application.
(b) Verification and record of solder paste thickness.
(c) Reflow profile of SMD.
(d) Pre-tinning stage for good solderability.
(e) Conformal Coating process and the measurement of thickness of coating.
(f) Introduction of 40X Magnification for PCB Inspection.
(g) Introduction of FOD check before conformal coating.
(h) SOP for packing and transportation of PCB.
(i) PCB assembly was carried out by Certified operators as per JST-002 and certified inspectors as per IPC 601D.

4. Significant improvements were proposed for MILDS LRU assembly which consists of:-

(a) Induction of fixture calibration with adequate torque for fixing bolts before conducting the vibration of the units.

(b) Induction of preventive maintenance schedule of Thermal Chamber and record upkeep.

5. The above quality and process procedures reduced the rejection rate during manufacturing.

6. **Achievement:** Process and Quality improvements initiated by OAQA, BEL has been well appreciated by M/s Airbus, Germany

Improvement Summary.

Sl. No	Card Name	Total Quantity	Qty without failures	%age Acceptance Rate	OEM Acceptance Rate at their plant
1.	Pre-Processor (PP Board).	185	184	99.5%	85-90%
2.	Main Processor Board).	190	186	98%	85-90%
3.	Power Supply Board.	188	186	99%	85-90%
4.	Optics Sensor.	190	190	100 %	90%

About the Author: Shri H Devaraju, Director AE & IT HQrs joined DAQAS Service in 1995.

QUALITY QUOTES

Quality is not an act, It is habit

Quality means doing it right, when no one is looking

Quality don't just happen, they are planned and skilfully crafted

Quality is the best Business plan

ATMANIRBHAR BHARAT AND WORLD CLASS QUALITY IN DOMESTIC DEFENCE MANUFACTURING

Shri Biswajit Choudhury, SSO-I

The clarion call by Honourable Prime Minister for '*Atmanirbhar Bharat'* and '*Go Vocal for Local'* have raised quite a high level of awareness among the people in a very short span of time. It was highly appreciated by one and all particularly due to recent tension at the Indo-China border and our high dependency on Chinese products at all level of society. There is no doubt that self-reliance is the need of the country. But the challenges in meeting the domestic needs are also very huge. There are criticalities in many sectors. Defence Aviation manufacturing is one such sector. The very fact that India spends more than 70 per cent of defence capital equipment purchase budget on imports is a clear indication that there is a huge gap in demand and supply. So, there is a great need to indigenise and achieve self-reliance in defence sector.There is no doubt that the 'Make-in-India' initiative has resulted significant momentum in defence manufacturing sector. Major shakeup is being given to the defence ministry to fall in line with government-vision. Strategic partnership model has been created to give leverage to the domestic industries and identification of organically grown defence clusters is already in process across various parts of the country. Companies like Tata, Reliance, L&T, Bharat Forge, Mahindra & Mahindra and Godrej have already acquired licenses under various categories of defence production. Many of them have made Joint Ventures (JVs) with world class defence manufacturers like Lockheed Martin, Boeing, Sikorsky, Embraer, Thales, Dassault and Israel Aerospace Industries (IAI).

Defence production requires Mil-grade raw materials, quality tools and testers, top class skill set and expertise. Military use needs very high reliability and world class quality, which is possible by following international quality norms, both in QA planning and execution

through high motivational level. A well planned QA documents prepared as per international quality norms may fail to render world class quality if the leadership and motivation is not in line. So, in pursuit of product quality, QA leadership has also to be world class, where all must practise quality spontaneously, sincerely and with honesty. The QA regulatory function should be performed such a way where compliance to quality is made a voluntary process instead of compulsion. The certification process should be aimed to promote self-compliance instead of more and more control.

Excessive control and monitoring always makes the system and its output both dependent on the controller's intervention. Cases have been noticed where first party certification has become a formality since the product, anyway, has to go through the external inspection and evaluation phases in succession. This kind of leadership and behaviour is not conducive for natural growth of an international quality system. The process should be such that it promotes quality culture at manufacturer end itself. It must focus on achieving world class quality, no matter how large and small or what type of industry it may be. Further, if the manufacture is focused towards desired quality, the system must protect and reward the responsible manufacturer. But, at the same time, the system must correct, guide, support and control the non-complying ones. This way, self-certification philosophy will bring about transformation in the entire work-culture.

Self-certification is a kind of certification in which the first party certification itself is the final certification of product quality. It is granted to the category of manufacturers who meet the benchmarks laid down by the regulatory agency after requisite audits and validation of tools, testers, process, skills, expertise etc. The purpose is '<u>Not to inspect but to promote Compliance</u>'.

A standard method of rating the manufacturers based on quality parameters like MTBF, MTTR, Failure rate and Defect Investigation (DI) etc should be put in place effectively and better performance must be recognized through up-gradation of the ratings periodically. In Self-certification, if products have high failure rate, the manufacturer should be penalized separately in addition to Warranty and Free of Cost (FOC) repair. The method and criteria of the penalization should be finalized mutually and duly mentioned in Supply Order itself.

Effective communication and better cooperation must prevail at all time among customer, manufacturer and regulatory agency. The so-called *inspector-raj* should not appear in dealings and behavior. More freedom and independence should be given to the quality professionals so that they can always get the business principles connected to quality principles. Standard training methods and syllabus in line with international quality norms should be in place. World class defence products must be the dream of all stake holders. Then, the dream will automatically come true if there is passion, positivity and patriotic intent to create *Atmanirbhar Bharat* for Defence manufacturing in our great Nation.

<u>About the Author:</u> Shri Biswajit Choudhury, SSO-I is posted at ALISDA Bengaluru. He joined DAQAS Service in 2009.

DG'S COMMENDATION AWARD 2020

Following Officers Were Issued Appreciation Certificate / Commendation For Their Outstanding Contribution

MAHESH C KALASAD,
PScO Bengaluru

MD ABDUL MAJEED,
PScO , Bengaluru

I S SIKARWAR,
PScO, HQ New Delhi

R M KAUSHIK
SSO-I, New Delhi

V K MISHRA,
SSO-I, New Delhi

S C BADOLA,
Dy Dir (C & F), New Delhi

B S SANDEEP,
SSO-I, Bengaluru

M K GUPTA,
SSO-I, Koraput

N K PATHAK,
SSO-I_Jabalpur

SUDHAKAR SAHOO
SSO-I, HQ New Delhi

MD WASSIM HUSSAIN
SSO-I, Korwa.

M PRAKASH,
SSO-I, Bengaluru

P K PADHI,
SSO-II, Kanpur

RANAJIT MOHAPATRA
SSO-II, Koraput

R P YADAVA ,
SSO-II, Lucknow

VIJAY KUMAR ARYA,
JSO, Hyderabad

ANKUR SHARMA,
JSO , Nashik

MWO K IYLANGO
HQ, New Delhi

LAKKEWAR NILESH ANIL,
Chanda

U S PANDEY,
ASO,HQ New Delhi

K.KOTESWAR REDDY,
Sr. Steno, Hyderabad

HAREENDRA DAS,
Draftsman,HQ New Delhi

Well done!

Congratulations

SUPERANNUATION, APPOINTMENTS AND PROMOTIONS DURING APRIL- JUNE 2020

Shri A K Bhatte

Shri A K Bhatte, Ex Director General superannuated on 30 June 2020. He joined DGAQA in DAQAS Cadre in Sep 1991.

Shri V Arumugam

Shri V Arumugam, Ex ADG (HQrs) superannuated on 30 April 2020. He joined DGAQA in DAQAS Cadre in July 1992

Shri Jitendra Kumar

Shri Jitendra Kumar took over the charge as ADG, HQ w.e.f. May 2020. He joined DGAQA in DAQAS Cadre in Feb 1992.

Shri A K Steele

Shri A K Steele took over the charge of ADG (N&CZ), Lucknow w.e.f 01 June 2020. He joined DGAQA in DAQAS Cadre in Dec 1992.

Shri M J Vinod Kumar

Shri M J Vinod Kumar has assumed the charge as ADG, Koraput w.e.f. 01 Jul 2020. He joined DGAQA in DAQAS Cadre in Oct 1992.

Shri M. Natesh

Shri M. Natesh has assumed the charges of higher duties as Principal Director, MSQAA w.e.f 26 Jun 2020. He joined DGAQA in DAQAS Cadre in Feb 1994.

Shri Bhukhya Rajaram

Shri Bhukhiya Ram has assumed the charges of the Regional Director (MRO & RWRDC, Bengaluru on 30 June 2020. He joined DGAQA in DAQAS Cadre in July 1997.

SUPERANNUATIONS:

Sl. No.	Name	Designation and FE/ Unit	Retired on
	Shri BP Kurhewar	Store Supervisor, Gd-I	01 Apr 2020
1	Shri G P Soni	Foreman, Khamaria	31 May 2020
2	Shri MD Phale	Chargeman, Khamaria	31 May 2020
3	Shri V W Hukare	Office Superintendent, Bhandara	31 May 2020
4	Shri Hari Ram	MTS (General) Kanpur	01 Jun 2020
5	Shri S Palaniswamy	Chargeman, Trichy	30 Jun 2020
6	Shri DK Kori	OS, Khamaria	30 Jun 2020
7	Shri Shahabuddin	Sr Draughtman,	30 Jun 2020

PROMOTIONS:

Sl. No.	Name of officer	From	To
1	Shri Biswajit Chaudhary,	SSO-I, OAQA Barrackpore	PScO (NF), OAQA Barrackpore
2	Shri Satya Prakash Pandey	MSQAA Hyderabad	PScO (NF), HQ DGAQA
3	Shri Jose Varughese	SSO-I, MSQAA Hyderabad	PScO (NF),MSQAA Hyderabad
4	Shri I S Sikarwar	SSO-I, HQ DGAQA N. Delhi	PScO (NF), HQ DGAQA N. Delhi
5	Shri Dipak Kumar Panda	SSO-II, HQ DGAQA N. Delhi	SSO-I OADG Koraput
6	Shri KhusharajKhaddeo	SSO-II OADG Koraput	SSO-I, MSQAA Hyderabad
7	Shri Anil Kumar Verma	SSA, OADG(N&CZ). Lko	JSO, OADG(N&CZ). Lko
8	Shri Ajit Kumar Singh	SSA, HQ, DGAQA N Delhi	JSO, OADG(N&CZ). Lko
9	Shri LaxmidharSahu	Chargeman, Dumdum	Foreman, Dumdum
10	Shri Santosh Singh	Sr Draftman, AQAW Khamaria	Chief Draftman, AQAW Khamaria

NEW JOININGS:

Name of the Officer Shri/ Miss	Designation	Date of Joining	Discipline	FE / Unit
Narendra Dehury	SSO-II	26-06-2020	Electronics	ORDAQA, HAL ,HYD
MohneeshTapparwal	SSO-II	13-06-2020	Mechanical	ODDG Nasik
Ravikiran Basutkar Shrihari	SSO-II	27-01-2020	Mechanical	OADG (Koraput)
Sumeet Kr Chaubey	SSO-II	03-02-2020	Electronics	MSQAA (Hyderabad)
Sutirtho Boral	SSO-II	03-02-2020	Electronics	MSQAA (Hyderabad)
Krishnaveer Sharma	SSO-II	12-02-2020	Mechanical	MSQAA (Hyderabad)
Neharika Singh	SSO-II	12-03-2020	Electrical	ORDAQA Bengaluru
Vivek Singh	SSO-II	16-03-2020	Electronics	ORDAQA Bengaluru
Sumit Katoch	SSO-II	17-03-2020	Mechanical	ODDG Nasik
Navneet Mishra	SSO-II	17-03-2020	Mechanical	OADG Koraput
Bhavanee Singh Meena	SSO-II	18-03-2020	Electronics	ALISDA Bengaluru
Joy Das	Chargeman	18-02-2020	Mechanical	Dett Dum Dum
Deep Narayan Vishwakarma	Chargeman	26-02-2020	Electrical	AQAW(A) (Khamaria)
Rajkishor Pradhan	Chargeman	03-03-2020	Electrical	Dett Kanpur
Md Ameer Khan	SSA(G)	28-05-2020	Mechanical	HQ DGAQA
Gaurav Tyagi	SSA(G)	16-03-2020	Mechanical	HQ DGAQA
Pankaj Pratap Ramji Singh	Foreman	08-06-2020	Mechanical	AQAW(A) Khamaria
Shubhangi Rajesh Bagade	Steno Gde-I	20-06-2020	BA (Arts)	AQAW(A) Bhandara

क्या हम यह नहीं जानते कि आत्म-सम्मान आत्म-निर्भरता के साथ आता है:

डॉ. ए.पी.जे अब्दुल कलाम

DGAQA DIRECTIVES

- AQA Directive onProcurement Process as per DPM & DPP
- AQA Directive on PDI during Foreign Acquisition
- AQA Directive PCB Soldering Process
- AQA Directive on Kit Inspection For electronics, mechanical components and consumables for airborne IRUS/Module
- Standard Template For ATP DGAQA for the product manufactured in India
- QA directive on the 'Certificate of Safety For Flight ' (Form-1090)
- Quality Directives on Environmental Stress Screening (ESS)
- AQA Directive on "Guidelines for QTP and ATP of Ground Equipment/Jigs for Airborne Items (Electrical & Electronics)" (ISSUE - II)
- AQA Directive on "Guidelines for QA during outsourcing by Main Contractors" (ISSUE - I)
- Corrosion on Military Aviation Stores
- Brief on Testing and Certification Procedures in Military Aviation Sector
- Observation of Critical Snags During DGAQA Memo Stages and Timely QA Coverage

DGAQA PROCEDURAL DOCUMENTS

- Approval of a Firm and its Quality Management System (AFQMS)
- Standard Operating Procedure (SOP) for Assessment and Registration of Firms/ Vendors
- Standard Operating Procedure (SOP) for approval of the test laboratories
- Third Party Inspection Policy Document

All above mentioned Documents and AQA Directives are available on our website- https://www.dgaeroqa.gov.in/

Vigilant Eye is the key to safety

5 Lesson Learnt-Hard Way

Rejections Reduced By Process Improvement 14

This magazine can be viewed on DGAQA website at https://www.dgaeroqa.gov.in/ under 'Media' menu.

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