HEAVY LIFTING
Guidance for safer manual-handling practices at work

INSIDE: • MILITARY AVIATION TURBINE FUEL • 2017 RAAFSafe CONVOCATION • MUSCULOSKELETAL INJURIES
Are you aware?

The Defence Aviation Hazard Reporting and Tracking System (DAHRTS) will be replaced in February 2018.

The Aviation Safety Management Information System (ASMIS) Project is delivering a better aviation safety reporting system that will enhance Defence’s ability to learn and take action to improve safety. Information packs and training opportunities are on the way.

Get ready for 2018
For more information visit the DDAAFS intranet
By WOFF Jeff Peacock

A S PART OF THEIR EVERYDAY WORK, Air Force’s aircraft surface finishers (ASURFIN) are exposed to multiple hazards, such as hand-arm vibration, hazardous chemicals, dust and noise, all of which must be carefully managed.

PAF ASURFIN personnel are located at Edinburgh, Richmond, Williamtown, Amberley and Tindal and are responsible for maintaining the surface finish of aircraft and aircraft components by removing and applying conversion coatings, primers and topcoats to preserve those assets.

During these activities, ASURFIN personnel are exposed to multiple hazards, that include: toxic paint strippers, chromate dust, chemical hazardous chemicals, dust and noise, all of which must be carefully managed.

The present

Historically, the mustering was isolated from formalised instructions and had poor management of safety issues including exposures to: hand-arm vibration (HAV), hazardous chemicals, dust and noise, as mentioned.

For a long period each unit was left to maintain aircraft based on their own experience, knowledge and understanding of safety applications.

There was a long-term struggle to gain effective upstream support.

The ASURFIN role incorporates a complex mix of those hazards and requires a comprehensive approach to the management of the hazardous work environment to provide the best possible protection of the members.

The past

By removing and applying conversion coatings, primers and topcoats to preserve those assets.

There was a long-term struggle to gain effective upstream support.

The ASURFIN role incorporates a complex mix of those hazards and requires a comprehensive approach to the management of the hazardous work environment to provide the best possible protection of the members.

The extent of these activities, ASURFIN personnel are exposed to multiple hazards, that include: toxic paint strippers, chromate dust, chemical conversion coating materials and vapours, hazardous plumes from two-pack paints and primers, solvent material and vapours, noise and vibration.

The ASURFIN mustering was isolated from formalised instructions and had poor management of safety issues including exposures to: hand-arm vibration (HAV), hazardous chemicals, dust and noise, as mentioned.

For a long period each unit was left to maintain aircraft based on their own experience, knowledge and understanding of safety applications.

There was a long-term struggle to gain effective upstream support.

The future

Members progress through the trade and rank:

- ASURFIN safety elements will be improved through a process of self-assessment by ASURFIN personnel and external processes such as audits.
- Experience gained and supervision provided to the members will be based on the same safety values across the trade.

The ASURFIN mustering was at a standstill with little direction as to how the trade could best meet the legislative safety requirements. The ASURFIN project was initiated by HQAC with subject matter expert support provided by DDAFS. The project looked at all aspects of the jobs undertaken by the ASURFIN trade. In doing so, the project provided new control measures for a variety of identified hazards, which included exposure to hazardous chemicals, dust, noise and vibration.

The new direction resulted in a whole-of-trade risk-control plan to reduce risks so far as is reasonably practicable (SRAP). This provides assurance to the ASURFIN mustering and re-aligns procedures for compliance through a standardised approach to hazard identification and risk management.

Our maintenance organisation’s poor safety decision-making of days gone by are being removed as the requirement for better safety procedures has arrived. Air Force must comply with legislation and in particular the requirements of the HazChem Safety Enforceable Undertaking (EU). For the ASURFIN mustering, the lack of a standardised approach to hazard identification and risk management was not being met and Air Force could not demonstrate its full commitment to the EU.

The extant safety beliefs in the mustering were proven to be inaccurate, resulting in the HazChem safety procedures requiring standardisation. Through the ASURFIN Project and its associated risk control plan, HQAC (with SME advice from DDAFS) will provide the mustering with a process change in the PPE application area. The loose ends of what was a self-generated safety system were taken apart and given an overhaul.

Every member of this trade is about to embark on a journey of transition from the old ways to the new methods of safety. Not that they were deficient in...
program itself will have a manager appointed to oversee the adherence to the standard via the reporting methods and records produced in the field.

Essentially, HQAC (with SME input from DDAFS) is providing assurance across the mustering to have the best possible safety applications in place.

The implementation and compliance with the ASURFIN RPE and CG Program SI, will ensure the safety of the ASURFIN mustering members to a better extent than what has been delivered in the past.

The new program based on recommendations from the SME reports and incorporated as required by AS/NZS 1715:2009, will introduce a whole new range of procedures, checks and balances.

As part of the SME findings, the mustering will now be using a particular type of RPE, incorporating both the positive air-fed stethoscope breathable air for extended use and half-face respirator cartridge type assemblies with timed exposure limits.

The RPE will now be administered in conjunction with a single chemical-resistant pair of gloves. The single-glove approach is bolstered by the approval to use a high-strength butyl glove as the outer glove when required during extensive use of the known invasive paint strippers.

The SI will make extensive use of AS/NZS 1715:2009 and 2161.1:2016 combined with upgrades in equipment like the Clayton Hornet Sanding System to provide the basis of re-vitalising the mustering safety applications.

Adhering to the new direction re-aligns the mustering to best practice for safety management when working in the hazardous ASURFIN environment.

Part of the new program is to introduce annual training to the mustering focussed on the requirement to maintain a high standard of HazChem knowledge and protection.

References:

AAP 6730.001 – Air Force Safety Manual
AS/NZS 1715:2009 – The Selection, Use and Maintenance of Respiratory Protective Equipment
AS/NZS 2161.1:2016 – Occupational Protective Gloves — Selection, Use and Maintenance
THE impact of exposure to Military Aviation Turbine Fuel (MATF) on health has long been a topic of interest for the Air Force and its personnel.

Acknowledging there is a history of reports on fuel exposure from a variety of units (both internal and external to the Air Force), for example, DCOH reports and Jet Fuel Exposure Syndrome, DDAAFS has sought to define the level of risk associated with exposure to MATF. This work excludes other forms of petrols, oils and lubricants including diesel, although it is acknowledged that there may be health effects associated with exposure to these.

In 2016 DDAAFS undertook a project through 2EHS HAT to conduct an Occupational Hygiene Exposure and Risk Assessment of Military Aviation Turbine Fuels (MATF) Aircraft Maintenance Activities in Air Force, with the initial intent to use the findings to inform a health-monitoring recommendation in accordance with DHM Vol 2, Part 14, Chap 07.

In 2017 along with the findings from the 2EHS report, DDAAFS reviewed a variety of other reports relating to MATF exposure within the ADF and various external reports including journal articles about MATF exposure. This review confirmed a significant number of reports exist within the ADF; there is limited evidence that all findings and recommendations have been considered/implemented.

The review also found the reports identify a common theme of ineffective or absent controls and a heavy reliance on level-three controls, such as PPE.

Conflicting recommendations occur across reports in relation to whether there is a requirement to undertake occupational health monitoring for fuel exposure.

In general the reports have not been able to establish a single overall risk level associated with exposure to MATF due to the complexity of the tasksings and different musternings (personnel) involved.

DDAAFS acknowledges that a variety of working groups, committees and organisations have a role in the management of fuels (including MATF) across Air Force and the ADF; these include Commander Joint Logistics, Fuel Services Branch, Work Health and Safety Branch, Air Force Fuels Capability, Estate and Infrastructure Group, Defence Logistics Committee, Defence Fuels Management Committee, Defence Fuels Working Group, Fuel Training Advisory Committee, Air Force Fuels Working Group and HQAC MATF Risk Remediation Working Group.

DDAAFS is currently reviewing all the available reports, and in particular the 2EHS HAT report to make recommendations for a more co-ordinated approach to the control of exposure to MATF within Air Force and possibly for the ADF. This will include exploring the potential for health monitoring in conjunction with relevant agencies.
The Federal Court’s decision in Comcare v Commonwealth of Australia [2012] FCA 1419, under the previous Commonwealth health and safety legislation, provides useful guidance in relation to sharing information and consulting within departments.

Horizontal Consultation

More talking and sharing required within departments

By Aaron Anderson
(article courtesy of Norton Rose Fullbright)

Comcare v Commonwealth of Australia [2012] FCA 1419

In February 2010, an Army Officer Cadet was seriously injured by the unguarded moving parts of an inflatable boat (RHIB) when he fell from the RHIB during an Australian Defence Force Academy (ADF) fast-boat run training exercise.

The Court found that the Commonwealth breached its health and safety obligations by failing to provide an adequately guarded outboard motor. Following the incident involving the officer cadet, fully enclosed propeller guards were immediately implemented by ADFA on all RHIBs in operation.

Information: be sure to share it

Before the February 2010 incident, there had been six incidents involving Australian Defence Force (ADF) personnel and RHIBS but ADFA was not made aware of the Comcare incident report for each of the first three ADF incidents.

Following the second incident, the Army asked the Defence Materiel Organisation (DMO) to conduct a safety case study. The DMO study results were also not communicated to ADFA.

Following the third incident, the Army asked DMO to review certain matters relevant thereto and Army also revised policies and procedures in relation to RHIB usage. Neither the DMO safety case review results nor Army’s revisions were shared with ADFA.

In the Court proceedings, the parties agreed that the six previous incidents meant that the Commonwealth knew the installation of full propeller guards would eliminate or reduce the foreseeable risk of injury in training exercises. The Federal Court found that the six previous incidents highlighted a “very high foreseeable risk” of serious injury or death arising from the use of the RHIB in certain training exercises.

Further, the failure of other areas within Defence to provide ADFA with information about the six previous incidents meant that ADFA did not have the information that might otherwise have prompted it to install full propeller guards.

The judgement stated that the Chief of the Defence Force (or an appropriate delegate) must consider issuing a directive or instruction to ensure that there are effective systems to communicate and share health and safety information across all sections of the ADF.

It emphasised that such health and safety information is not to be limited to matters in which Comcare is involved. It should extend beyond merely providing Comcare reports. Griffiths J recommended a proactive approach in this regard.

There’s no such thing as over sharing

While this decision was made under the old OHS laws, there are pertinent lessons that are important in the context of the specific obligation under the WHS Act for Commonwealth Department’s and agencies to communicate, co-ordinate and co-operate in relation to WHS matters with other duty holders — whether they are duty holders under corresponding OSH legislation or other duty holders in the Commonwealth (often referred to as the horizontal consultation duty).

The information-sharing systems for safety, referred to in the judgment, are exactly the types of systems required by the horizontal consultation duty which has operated in the Commonwealth since 2012. Similarly, acquiring work health and safety knowledge through learning from previous incidents, near misses and reports into those incidents that have relevance across an organisation, would be required by the first element of the duty of the due diligence obligations of officers under the WHS laws.

With the horizontal consultation obligation, there has been a significant focus on working out how we share information with other duty holders.

The officer cadet case also highlights the need for more sharing of information internally within departments as part of department’s primary duty to ensure health and safety.

In large departments, different branches often operate like separate entities. Accordingly, it follows that a proactive approach in order to adequately control hazards and risks, lessons learnt in one part of a department need to be shared in others where similar activities may be performed. For that reason, if your department or agency suffers in any way from organisational silos within its structures, it’s time to develop proactive systems to break down those silos in order to ensure health and safety is being adequately managed.

Duty holders in the public sector (including departments and agencies) should consider the following in creating information-sharing systems to meet their horizontal consultation obligations:

It’s not over until it’s over

The case is also a reminder that the court may actually make its own mind up about how serious an incident is. Further, just because you have agreed a penalty with the regulator, this doesn’t mean that the court will come to its own view in determining a appropriate penalty.

In highlighting the serious nature of the incident, the judge rejected the $190,000 civil penalty agreed by the parties and imposed a $210,000 penalty because the matter ‘warranted’ a civil penality within a very high range.

For more information:
2. at [105].
3. at [93].
4. see section 12B of the WHS Act.
5. see section 46 of the WHS Act.
6. see also Michael Tsima, Due Diligence: Horizontal and Vertical Consultation (CCH,2012).
By WOFF Jeremy Hayler

A RAAF operates a range of long-haul aircraft that include on-board lavatories — the unfortunate consequence is that someone has to empty the sewerage.

Thankfully, modern aircraft use a closed waste system, that works much like a common household toilet with the airborne version either flushing or sucking (via a vacuum system) the wastewater into a storage tank. When you land, the tank is emptied and the waste is sent to a waste-disposal site.

But what happens when things go wrong?

A review of Sentinel data over the past three years reveals that a number of incidents have occurred where personnel have been exposed to human waste. Yep — excrement.

These exposures have ranged from a small amount of liquid waste landing on exposed skin (typically on the wrist between the overall and glove) to literally, a torrent of excrement on the face and chest.

So, how did this happen? Surely anyone performing this unpleasant task would make every effort to prevent spillages and exposures.

**Incident 1.** While conducting a C-130J chemical lavatory servicing using the toilet-servicing cart, the hose disconnected from the aircraft and effluent spilled onto the arms and shirt of member emptying the tank.

The investigation revealed that the designated toilet-servicing cart was known to be unreliable. That’s right — the personnel who were normally tasked with emptying the sewerage from the C-130J’s onboard toilets, knew that if they did not handle the hose correctly, there was potential for it to disconnect with some very unpleasant consequences.

**Incident 2.** While conducting a lavatory servicing on a C-17A aircraft, the hose detached from the toilet-servicing cart end.

At the time, the hose was full of waste which meant the member undertaking the servicing was splashed on the arms, chest, stomach and legs by excrement. Possibly out of concern for the environment, the member then proceeded to block the open end of the hose to prevent further spillage while another member was sent to retrieve a screwdriver so the hose could be reattached.

The investigation into this case revealed that the clamp connecting the hose to the designated toilet-servicing cart was not rated for the task and loosened to the point that it disconnected and the spillage occurred.

**Incident 3.** During another C-17 lavatory servicing, the member tasked with emptying the tank pulled on the hose to attach it to the aircraft and... the contents of the hose from the previous servicing spilt onto the member’s pants and shirt.

In this case, the investigation determined that the toilet-servicing cart was not parked close enough to the aircraft. This required the hose to be stretched; it was not parked close enough to the aircraft. The investigation revealed that the designated toilet-servicing cart was not serviceable and fit for the activity being undertaken.

**Incident 4.** While conducting a toilet servicing on the KC-30A aircraft at an overseas location, the member was sprayed with about one litre of excrement. The problem here was the waste hose had duct tape wrapped around one end. The member conducting the servicing made a cursory inspection of the hose, could see no obvious damage, and decided to proceed with the task anyway. Unfortunately, the hose leaked and the unpleasantness occurred.

The investigation revealed that the borrowed equipment was faulty and although the member had seen the duct-tape repair, he had no indication that there was an imminent failure about to occur.

**Common factors**

Equipment failure and/or misuse are common factors in all of these incidents. Under the Work Health and Safety Act, workers have a responsibility to take reasonable care for their own health and safety and for the safety of others. This includes the requirement to ensure all equipment used to perform a task is serviceable and fit for the activity being undertaken.

In two of the incidents it appears that a conscious decision was made to ignore the apparent use of PPE during these events. The potential for contact with excrement should have been reasonably foreseeable by those members involved.

DDA’s are aware of at least one Sentinel event that describes where a member ended up with a face full of effluent when a hose was handed down to them with the valve on the lavatory unit open.

Serviceable equipment, including PPE, helps prevent workplace injuries. When unserviceable equipment or inappropriate PPE is used it not only compromises the serviceability of the equipment but can also impact fellow workers and others who may be exposed to the hazard.

The real failure lies in the operators’ lack of vigilance for checking the serviceability of the equipment and for not wearing the appropriate PPE for the task. It is disappointing that the members involved did not conduct a Rule of Three and PEAR (immediate risk awareness review). This could have identified equipment and PPE issues, protecting the member from any contact with excrement.

Next time someone hands you a toilet-servicing cart make sure you are protected for what might come out.
If we have controls to deal with hazards, why do we talk about risk?

By SQNLDR Stephen Haines

Under the Work Health and Safety (WHS) Act 2011 and Work Health and Safety (WHS) Regulation 2011 (collectively the WHS legislation), Defence has an obligation to manage risks to health and safety so far as is reasonably practicable.

A key requirement of managing risks is the ability to identify workplace hazards and to implement controls to eliminate (or where this is not practicable), minimise the negative effects those hazards have on worker safety.

However, the term hazard has many different contexts both within Defence and across the wider community. For example, if you were residing in North Queensland in the summer season you could be exposed to a significant environmental hazard from cyclones. Conversely, a hazard is also a permanent feature of a golf course such as a bunker or stream, which presents an obstruction to playing a shot. For Air Force, when we refer to a hazard in the WHS domain, we are talking about a situation or thing that has the potential to cause harm.

So how do we identify these hazards?

Hazard identification is about finding those things in the workplace that could potentially cause harm to personnel. This is best achieved by walking around the workplace and observing how things are done. And it takes an open mind to have a good look to identify all possible hazards because we often get lulled into a false sense of security by thinking “we’ve been doing it this way for years without any incidents or accidents”.

To assist with the identification process, hazards have been broken into categories:

- Physical — noise, vibration, temperature, et cetera
- Chemical/substance — exposure to acids, lead or cyanide, et cetera
- Ergonomic — equipment design, work area layout, et cetera
- Radiation — exposure to ultraviolet light or radioactive components, et cetera
- Biological — viruses or bacteria, et cetera
- Psychosocial — workplace violence or bullying, et cetera

These categories can be coupled with the Rule of Three and PEAR risk awareness process (refer to “Are you aware of your risks?” article in RAAF Safe magazine 02/2016) in order to assess hazards while tasks/activities are being performed.

Alternatively, checklists can be used to assist with workplace inspections and can help predict what could or might go wrong by looking at how people actually work, how plant and equipment is used, what chemicals are around and what they are used for, what safe or unsafe work practices exist as well as the general state of housekeeping.

Workers are also a good source of hazard information because they are more familiar with the work process and can assist in identifying multiple sources of hazard and how they interact across the workplace, as demonstrated in the picture above. Hazard identification is important because once the characteristics of the hazard have been determined, proper controls can be implemented to eliminate or minimise their effects.

What are controls and how are they implemented?

A control is an object, system, process or action that is used to eliminate or minimise a hazard’s ability to cause harm.

The WHS legislation places strong emphasis on elimination of hazards in the first instance — do I need to do this task — but this strategy is not always achievable, so provision is made to allow minimisation of the effects of hazards when elimination is not an option. This approach also reflects that there are many different ways to control hazards and some measures may be more effective than others.

The WHS legislation advocates the use of the hierarchy-of-controls tool as shown on the next page when considering control measures. The tool is divided into three different levels, which can be used to determine the suitability of measures that either eliminate or...
minimise the effects of a hazard. Essentially, the levels are about ranking the usefulness of controls from the highest level of protection and reliability to the lowest.

Instead of breaking down each of these levels to explain how they are applied, we can use the simple scenario of crossing a road as a means of demonstrating the relationship between a hazard and a control.

In this scenario it is not hard to identify that the vehicle has the potential to cause harm to a pedestrian. Consequently, the hazard is the vehicular traffic on the road.

In terms of controls, pedestrian crossings are designed to eliminate or minimise the effect of the hazard posed by vehicular traffic on roads. In other words, you are less likely to be hit by a moving vehicle when crossing the road if you use a designated pedestrian crossing.

How does this link to the hierarchy of controls?

There is a range of different types of pedestrian crossings, and these can be used to explain how different types of controls either eliminate the hazard or offer decreasing degrees of protection against the hazard.

Level 1: This is a level of control that is used to eliminate the hazard altogether. This is an administrative level of control that is used to eliminate the hazard altogether. This is an administrative level of control that is used to eliminate the hazard altogether. This is an administrative level of control that is used to eliminate the hazard altogether.

An important point to remember is that we are making an assessment of the likelihood of exposure to the hazard and not an assessment of the severity of harm, that is, the chance of being critically injured by the hazard based on the degree of harm we have assessed when making the consequence determination.

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How do we apply this to our scenario?

Without delving into complex research and data analysis, it is a reasonably well-known fact that a pedestrian can be killed if they were to be hit by a moving vehicle while crossing a road. And if we apply this to our consequence matrix, the result could be an assessment of CATASTROPHIC. However, this is not the most realistic or plausible outcome, because not every one who is hit by a moving vehicle is killed. Therefore, in our simple scenario, the most realistic and plausible outcome is RARE.

Now we have made our consequence and likelihood assessments what next?

We apply our consequence and likelihood assessments to the Defence harmonised risk matrix to determine the assessed level of risk.

Consequence = CRITICAL
Likelihood = RARE
Risk = LOW

The assessed level of risk plays an important role in communicating the effectiveness of hazard-control measures to senior management. This is particularly valuable in Air Force where risk levels vary widely from the relatively low-risk office-based work to high-risk maintenance and aviation activities.

The assessed level of risk also helps decision makers determine if the risk is acceptable or not, thus allowing tasks to proceed or to be suspended until more suitable controls can be implemented.

Air Force personnel are encouraged to integrate the hazard, controls and risk assessment principles contained in this article into their daily tasks and activities so that hazards can be identified, controls implemented and risk levels are communicated.

Points to remember:

- A hazard can harm you.
- A control can eliminate or minimise the harmful effects of a hazard.
- Risk levels help communicate the effectiveness of hazard controls and help decision-makers decide if risky tasks should proceed or not.

A colourful MAT (exposure case study) derived from an incident in northern Australia and delivered by the CO at the time. The case study in particular provided attendees with an opportunity to learn lessons in regards to hazards and effectiveness of risk-management controls in a typical Air Force unit.

A key outcome of the convocation every year is to provide attendees with an opportunity to meet and share experiences with members in like positions across the organisation. From this point of view the convocation can be declared a success and DDAF’s AF’s personnel would like to extend their gratitude to all those that attended and for their valuable input during the week’s proceedings.

The DDAF’s AF’s team looks forward to dealing with you all over the ensuing year and hopes to see your return for next year’s convocation to again help us improve safety policy and grant newcomers to the network.

2017 Convocation presentations are hosted on the DDAF’s AF’s website for all to view at: http://drnet.defence.gov.au/raaf/AirForceSafety/Promotion/Pages/Convocation-2017.aspx

The DDAF’s AF’s team is always looking to improve the product delivered to you so if you have any feedback or suggestions for next year’s Convocation please contact WOFF Gav Jones, DDAF’s AF’s Comcare Liaison Officer 6128 7 478 or gavin.jones1@defence.gov.au.

Alternatively, if your queries are of a general nature please forward any correspondence to the DDAF’s AF’s Group Mailbox and the team will respond to you so if you have any feedback or suggestions for next year’s Convocation please contact WOFF Gav Jones, DDAF’s AF’s Comcare Liaison Officer 6128 7 478 or gavin.jones1@defence.gov.au.

SIR REGINALD ANSETT MEMORIAL LECTURE AND DINNER

Tuesday 3 October at Parliament House Canberra, guest lecturer will be Mr John Borghetti Managing Director and CEO Virgin Australia.

Participation is by invitation only. For more information or to confirm attendance please contact 0428 222 422 or email: office@virginaustralia.org

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Safeskies Australia is the RAAF Safe initiative for Air Force Aviation Safety and is a national network of about 2600+ RAAF personnel.

Check website for updates and registration: www.safeskiesaustralia.org

Conference Details

- Wednesday 4 and Thursday 5 October: Conference at the National Convention Centre.
- Conference includes a joint presentation by Australia’s four government leaders in Aviation.
- Wednesday 4 and Thursday 5 October: Conference at the National Convention Centre.
THE term musculoskeletal disorder (MSD) covers any injury, damage or disorder of the musculoskeletal system—that is, muscles, nerves, tendons, ligaments, joints and bones, according to Australian Government statutory authority, Comcare.

MSDs can occur suddenly or over time, often resulting from lifting or handling objects or from muscular load with no objects, with or without repetitive movement. It comprises more than 100 diseases and syndromes, including carpal tunnel syndrome, arthritis, vibration white finger, sciatica, chronic back pain as well as musculo-ligamentous strains, sprains and tears.¹

MSD is a leading cause of injury and illness in the workplace worldwide resulting in not only loss of work and expense to the health care system, but also affects the quality of life of the injured person and their families. Safe Work Australia notes that in the year 2013 to 2014, all causes of MSD accounted for 90 per cent of all the compensation claims categorised as serious. Of these traumatic joint/ligament and muscle/tendon injuries alone accounted for almost half of these claims.²

Based on Sentinel data, it is evident that Air Force personnel are also experiencing significant rates of injuries categorised as MSD. These injuries result from exposures to the notable hazards including repetitive movement, manual handling, gravity, whiplash and ergonomics. The graph on the right shows the rate of MSD for each FEG over the last two years.

WorkCover Queensland information states MSDs occur by:

- gradual wear and tear to joints, ligaments, muscles and discs caused by repeated or continuous use of the same body parts, including static body positions
- sudden damage caused by strenuous activity, or unexpected movements
- or a combination of these mechanisms, for example, body tissue weakened by cumulative damage may be vulnerable to sudden injury by lower forces

There are many activities in Air Force that may cause MSD including:

- lifting, carrying, loading and unloading equipment
- poor workstation ergonomics
- wearing specialised equipment (for example, aircrew helmets)
- standing for prolonged periods.³

Comcare stresses that MSD risk is influenced by a large and diverse range of hazards and this it cannot be adequately addressed by simply assessing each hazard in isolation. A broad approach is required to achieve effective and sustainable results. The current policy in the Air Force Safety Manual on manual tasks is being reviewed to reflect this approach.¹

References:

1. Comcare www.comcare.gov.au
2. Safe Work Australia www.safeworkaustralia.gov.au
3. WorkCover QLD www.worksafe.qld.gov.au

DASA — D04AFS Fact Sheet 1/2017
The dangers of impact crush strike at work

By FLTLT David Fraser

Impact crush strike — overview

Definitions of impact/crush/struck

These series of hazards often relate to systems of work associated with the machinery or plant (fixed or moving).

Impact

Hazards including blunt-force trauma relate to objects that strike the human body but do not penetrate it. Examples include:

- The rotating arm of a robot
- Moving plant or equipment
- The reciprocating bed of a metal-working machine.

Crush

Crushing occurs when a part of the body is caught:

- Between a fixed and moving part of a machine
- Between two moving parts of a machine, for example, scissor-lift platform
- Between a moving part of a machine and a fixed structure.

Impact hazards are different to crush hazards, although the machines involved may be the same. Impact hazards operate against the inertia of the body, whereas crush hazards involve the trapping of the body between two machines parts or between a machine part and a fixed structure.

Strike

The human body can be struck by equipment, machinery or moving plant. Examples include:

- Parts of a machine, such as a loose tool in a lathe, or the breaking up of an abrasive wheel
- Material ejected from a machine, for example, swarf, timber from a bench saw, injection of fluids through the skin, which can cause tissue damage similar to crushing, or molten metal from a de-casting machine, welding sparks.

Air Force activities that may lead to impact crush/struck injuries include:

- Crush/crush injuries caused by unguarded machinery and fixed plant
- Collision with moving plant (traffic)
- Impact injuries caused by walking or bumping into hard surfaces such as wheel wells and shelving.

In industry, most forklift incidents involve pedestrians. Therefore, preventing forklift trucks colliding with either pedestrians or other powered mobile plant is essential.

Crush hazards are also referred to as pinch points. The physical forces applied to a body part caught in a pinch point can vary and cause injuries ranging from bruises, cuts and scraping to mangled and amputated body parts — even death.

If you have ever slammed your finger in a door, you can appreciate the pain associated with this common type of crush injury. Workers in field, industrial, and office settings are all affected by crush hazards to some degree. Identify the crush hazards and pinch points specific to your tasks, tools, and equipment so you can take precautions.

Ensure that clothing that is not too long or too loose, fitted properly and tucked in. Avoid wearing loose and dangling jewellery and ensure that hair is tied back. If gloves are required, ensure they are appropriate and well-fitted for the task.

Look for possible pinch points before you start a task. Take the time to plan out your actions and decide on the necessary steps to work safely. Give your work your full attention. Don’t yak around, daydream, or try to multi-task on the job — most accidents occur when workers are distracted. Read and follow warning signs posted on equipment. If you value all that your hands can do, THINK before you put them in a hazardous spot.

Machinery can pose a hazard with moving parts, conveyors, rollers and rotating shafts. Never reach into a moving machine. If you have ever slammed your finger in a door, you can appreciate the pain.

If you start a task, Don’t reach around, under or through a guard and always report missing or broken barriers. Turn everything off and use interlocks/tag-out procedures before adjusting, clearing a jam, repairing, or servicing a machine.

Crush hazards are not limited to machinery. Vehicles, powered doors, and forklifts can pose a crush hazard unless they have been blocked or tagged out. Never place your body under or between powered equipment unless it is de-energized. Doors, file drawers, and heavy crates can pinch fingers and toes. Take care where you place your fingers. Test the weight before lifting, carrying, and placing boxes; an awkward or heavy load can slip and pinch your hands or feet. Get help or use tools to move large and/or heavy items.

Figure 1. Mechanism of injury shows that the two most common means by which transport and storage workers were injured was by hitting or being hit or cut by an object and lifting, pushing or pulling object, which were also the two most common mechanisms of injury for all Australian workers.

Figure 2. Percentage of injury type, shows that sprains and strains were the most common form of injury to transport workers as well as Australian workers in general.

References:


Impact Crush Strike Injury Occurrence by FEG

(por 1000 Members Jan 15-Mar 17)

Air Force Training Group
Air Combat Group
Surveillance & Response Group
Air Mobility Group
Combat Support Group
Air Warfare Group

Numbers of injuries/1000 members

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AIR FORCE SAFETY AWARDS

By Wgdr Glenn Michael

Safety is everyone's responsibility but some Air Force personnel go above and beyond what's expected to produce remarkable results. It's only right that these safety champions - individuals, groups and the command chain - are acknowledged for their achievement and the Air Force Safety Awards (AFSA) scheme is one means to provide that recognition.

Since 2007, AFSA has been integral to the way in which Air Force recognises positive safety behaviour, with more than 45 people and organisations recognised for advancing Work Health and Safety (WHS) procedures and management. Advancements have come in many forms, including improvements to safety culture, processes, performance and productivity.

While the AFSA continues to provide an effective means of recognition, a revised scheme was introduced earlier this year by the Chief of Air Force (CAF) (see CAF Directive 013/17). The revised scheme features an improved award structure, advanced timeline and simplified nomination procedure. Nominations may be raised under the following categories:

GROUP CATEGORIES

1. Prevention: For group initiatives that address physical and/or psychosocial risk factors to prevent incidents from occurring
2. Early Intervention: For group initiatives that identify and respond to early-warning signs and reports of accidents, illnesses or injuries to manage and prevent further harm
3. Rehabilitation: For group initiatives that manage the return to work of ill and/or injured personnel

INDIVIDUAL CATEGORIES

4A: Person not holding formal WHS responsibilities: For individual contributions that have produced significant improvements in WHS management
4B: Person holding formal WHS responsibilities: For individual contributions that have produced significant improvements in WHS management

NOMINATIONS

You can nominate any Air Force organisation (for example, flight, squadron, wing or group) or work team (for example, section, task force)

There are two levels of award:
• Winner: recognition of exceptional performance
• Finalist: recognition of admirable performance

Category winners and finalists receive recognition in the form of an AFSA certificate signed by CAF and all award winners will be considered for nomination under the Defence Commendation Scheme.

Additionally, category winners will have their achievements promulgated by CAF Message and may progress to represent Air Force at the following Comcare WHS Awards:

- There are ample rewards in place for those who demonstrate excellence in advancing WHS management. For nominators, the rewards are more modest but no less significant. By participating as a nominator, you demonstrate personal commitment to WHS and help advance Air Force safety culture by positively influencing the behaviour of others.

- To encourage your participation, the administrative burden of raising AFSA nominations has been reduced to the minimum practicable.


- Nominations closed 31 July 2017 and winners will be announced by 30 September 2017


WHY PARTICIPATE?

- Show appreciation/be appreciated
- Raise awareness of WHS issues
- Promote high standards of health and safety in Air Force workplaces
- Support innovation
- Celebrate success

THE POWER OF RECOGNITION

Research by Gallup (cited in Rath and Clifton 2004), shows that regular recognition and praise can:
• Increase individual productivity
• Increase employee engagement
• Improve retention rates; and
• Reduce workplace accidents.

2016 AIR FORCE SAFETY AWARDS – A REVIEW

2016 marked the 10th anniversary of the Air Force Safety Awards (AFSA). The awards scheme has evolved over time to become the primary means of recognising positive safety behaviour and performance within Air Force. Several enhancements have been made to the awards, resulting in less administrative burden and a simpler award structure. The enhancements attracted a healthy competition for the awards, with 18 nominations received. Nominees represented a wide cross-section of the Air Force community.

CAF endorsed panel recommendations without amendment and the following winners were promulgated by CAF Message on 23 January 2017:

- SGT Luke Hamilton for researching and developing a physical conditioning program to prevent injuries in the cockpit.
- FLTLT Andrew Lane, FLTLT Leon Purton and Mrs Megan Welch for their contribution to the investigation and prevention of EMI-IR Super Helmet breathing-air issues and
- SGT Matthew Haynes for improving safety performance, system maturity and hazard awareness at Woomera Test Range.

These awards represent another successful year of AFSA. Many thanks to nominees who took the time to seek recognition of positive safety behaviour and performance. Your leadership helps mature Air Force safety culture.

QUESTIONS?

All AFSA-related queries should be directed to airforce.safetyawards@defence.gov.au or FLTLT Michael Tilovski on (02) 6128 7118.

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**AVIATION NON-TECHNICAL SKILLS COURSES NTS**

**DASM AL7 introduces a new training framework to replace the CRM and MHF programs**

Key changes include:

- A change in terminology from Crew Resource Management (CRM) or Maintainence Human Factors (MHF) to NON-TECHNICAL SKILLS (NTS). The term NTS denotes targeted human-factors training designed to promote reliable and effective performance. It promotes the integration of technical and non-technical training and assessment and recognises that not all Defence aviation personnel work in crew-based environments.

- **Aviation NTS Trainer Course** replaces SFAC and prepares participants to deliver NTS Foundation and Continuation and awareness training.

- **Aviation NTS Foundation Course** replaces CRM and MHF Foundation courses and will be integrated into all initial employment training for aviation-related trades.

- **Aviation Continuation Training** replaces refresher training sessions and consists of targeted scenario-based NTS training packages developed by DDAFS. It must be conducted every two years for all aircrew, JBAC, ABM, UAS pilots and operators, engineers and maintenance personnel.

The new framework supports a move beyond classroom-based NTS training to the conduct of skills-based training integrated into the broader training system. There are several evidence-based techniques for assessing performance; DDAFS recommends using the Method for Assessing Personnel Performance (MAPP) contained in the DASM.

For more information on NTS visit the DDAFS intranet homepage.
The Defence Aviation Safety Authority draws together seven directorates into one robust organisation to give Defence a co-ordinated and cohesive aviation safety capability into the future.

For more information on the DASA email ddaafs@defence.gov.au