

# TOP KNIFE FIGHTER SURGEON COURSE

173 Fighter Wing  
Kingsley Field Oregon

RSV-1A  
MISHAP RESPONSE AND  
INVESTIGATION

# Criterion Referenced Objectives

- Recognize the flight surgeon's responsibilities on the Interim Investigation Board (ISB)
- Recognize how the flight surgeon fits into the overall scheme of the ISB
- Recognize the flight surgeon's responsibilities on the Permanent Investigation Board

# Interim Board Flight Surgeon Responsibilities

# Overview

- The Interim Board
- Guidance and Preparation
- Initial Response
- Survivors
- Fatalities
- Role of the Chief of Safety
- Closing out/handoff

# Convening an ISB

- Convened by the Wing/Group Commanders
- Normally for a Class A or B mishap within their AOR
- No time for “spin up,” must be trained and ready

# Purpose of an ISB - 1

- Interim Boards do not solve mishaps
- Functions IAW AFI 91-204
  - Preserve evidence
  - Identify witnesses and conduct interviews
  - Gather factual data

**The word “investigate” does not appear anywhere in the ISB’s charter!!**

# Purpose of an ISB - 2

- Perform initial walk through with Incident Commander (IC)
- Assume “control” of aircraft
- Evidence preservation efforts
- Develop witness identification list
- Preliminary diagram of major components at site
- Make initial estimate of mishap cost/category
- Accomplish preliminary mishap reporting
- Photo mishap site, wreckage, human remains
- Prepare for SIB arrival

# ISB Relationship to the IC

- The IC owns the **mishap site**
  - Rescue – save lives (always the #1 priority)
  - Fire, Safety, Security
  - EOD/Composites/Bio/Pathogens
  - Logistics
  - Clean up/Recovery
- The ISB owns the **wreckage**
  - To gather and preserve evidence



# ISB Composition

- Minimum Suggested Composition:
  - President – OG or equivalent
  - Investigating Officer – trained FSO
  - Pilot member – Pilot in mishap A/C type
  - Maintenance member – Mx officer or senior NCO
  - Medical member – Flight surgeon
  - Recorder – Junior officer or senior NCO familiar with admin duties

# ISB President

- Usually Ops Group Commander (OG/CC) or Deputy
- Ensures initial board responsibilities carried out
- Evidence is preserved
- Installation is prepared to provide all necessary support to the SIB upon their arrival

# ISB Investigating Officer

- Usually a Wing Flight Safety Officer (FSO)
- Ensure preservation of physical evidence at the scene of the mishap
- Under ideal circumstances is supported by a second trained flight safety officer, who assists the ISB president in the systematic gathering of documentary and testimonial evidence
- Preliminary AFSAS message

# ISB Pilot Member

- Usually Sq/FSO or Wing DOV
- Assemble as much factual information as possible regarding the history of the mishap flight qualifications of the mishap crew.

# ISB Maintenance Member

- Usually Wing/Sq Mx Officer
- Assemble as much information as possible regarding the history of the mishap aircraft, its most recent servicing, and the qualifications of the individuals who most recently worked on it.

# ISB Medical Member - 1

- Main function is to preserve perishable medical evidence
- Ensure evidence not associated with human remains is left undisturbed
- Assumes responsibility for the post-mishap medical history, examination, care and toxicological testing of mishap crewmembers
- Collects medical and dental records
- Ensure human remains are photographed, preserved and documented
- Coordinate medical care at the mishap site
- Advise the ISB on environmental hazards at site

# ISB Medical Member - 2

- Liaison between local medical authorities or coroners and military investigators
- Contact AFMES for path assistance
- Interim board medical officer guidance
  - Chapter 1 of AFI 91-204
  - AFI 48-123
  - AFPAM 91-211
  - The Society of USAF Flight Surgeon's checklist
  - HQ AFSC SEFL

# ISB Recorder

- Ensure the administrative and logistical needs of the ISB are met
- If interim recorder is appointed, he or she may be retained as the ISB recorder with MAJCOM and local agreement
- A good recorder is the key to a smooth ISB



# ISB Guidance

- **AFI 91- 202, *The US Air Force Mishap Prevention Program***
- **AFI 91-204, *Safety Investigations and Reports***
- **AFPAM 91-211, *US Air Force Guide to Safety Investigations***
  - **Best source of info**
- **AFM 91-223, *Aviation Safety Investigations and Reports***



# Preparation – Planning

- If you are a potential ISB member, read your base CEMP and visit your Wing Safety Office
  - Search and rescue (SAR) agencies – with whom will you work?
  - Checklist for mishap response
  - Communication – Radio? Cell phone?
  - Jurisdiction for fatalities – Check locally
  - Mass casualty plan
  - Armed Forces Medical Examiner System (<http://www.afmes.mil>) has replaced AFIP!

# Preparation – Planning

- Mishap kit
  - Inventory regularly, ready at all times
  - Usually maintained by Wing Safety Office
- Personal gear
  - Available, no-notice
  - Maintained by YOU
- GPS – Safety office should supply
- After hours response plan

# ISB Member Training

- Dictated by AFI 91-202 ANG sup 1
- Formal training not required
  - COS/FSO will train the identified members
    - Initial
    - Annual re-currency training
- This must be documented
- Handouts, PPT presentations, or both may be used

[illegible]

# Individual Checklists

- AFPAM 91-211 Attachment 3
  - Section A3C has extensive, specifically designed checklists for each ISB member
  - Broken down into 3 phases
    - Preparation
    - Notification/ISB
    - SIB Arrival
  - A3.8 is specific for MDG/CC – Familiarize yourself with it ***beforehand***; outlines entire process
- Unit specific ISB checklists should be built into your Aircraft Mishap Response Plan

# Initial Response

- Recovery and treatment of survivors – First priority
- SAR mission
  - Land vs. water
  - How will you communicate with SAR personnel?
- Ambulance response
- Family Notification
- MAJCOM Notification
- Medical support at crash site
  - Local authorities? Military? Both? Know your local plan.

# Mishap Response “Big Picture”

Initial  
Responders

- Fire Chief

Disaster  
Control Group  
(DCG)

- Incident Commander
- Safety Representative

Crisis Action  
Team (CAT)

- Wing Commander
- Safety Representative







# Survivors

- Medical and Dental Records
  - Crew mental health records, substance abuse records, family advocacy records, list of medications prescribed from the pharmacy
- Collect Life Support Gear
- Treat injuries, perform complete physical
- Ejection: Full spine x-rays
- Toxicology
  - Ship express to **AFMES** (not AFIP!)
  - Save extra blood

# Survivors

- 72-hour history
  - Detailed
  - Crew rest, diet, stressors
- 14-day history
  - Less detailed
  - Look at changes in routine
- DNIF survivors
  - Do not rush RTFS

# Survivors

- Telephone report to MAJCOM
- Recovery of egress equipment
- Preservation of life support and egress equipment

# Survivors

- Wrap items in plastic and limit handling
- Wet items should be dry
  - Don't attempt to fit fractured metal surfaces together
- Do not alter attachments
- If items are soaked in blood or body fluids, spray with Lysol and let dry

# Survivors – Interviews

- Who
  - Transient witnesses
  - Local eyewitnesses
  - On duty witnesses
  - Survivors/relatives
- Basics
  - Promise of confidentiality?
  - “Tell me what happened”
  - “Tell me what you saw”
  - Few follow-on questions

# Fatalities

- Remains tagged, photographed and removed
  - Diagram location
  - Involve FS and SPTG/services
    - With large complex mishap -- may take days
- Local coroner vs. Flight Surgeon
  - Coroner/ME usually has jurisdiction on/off base
    - Dictated by MOUs & state laws
  - FS participates “over-the-shoulder”
  - Call in AFMES for complex mishaps
    - Autopsies and remains identification

# Fatalities

- Psychological Support
- CISM: Critical Incident Stress Management
  - Covered by AFI 44-153
  - Composed of medical, mental health, chaplain, etc
  - Serves families, aircrew, SAR, recovery personnel, etc
  - Have available at mishap location



# Pre-Autopsy

- Photographs done at mishap site
- Secure personal effects and valuables after tagged, photographed in original location
- Total body X-rays
- Notify SIB flight surgeon of fatalities, disposition of remains
- Transportation of remains



# Autopsy

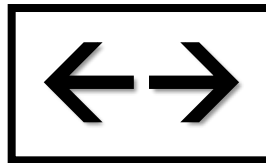
- Secure life support equipment
  - With body until autopsy
  - Give to mishap board
- Obtain toxicology study results
- Death certificate
- Board president's approval necessary to release remains

# Chief of Safety - 1

- Preparation
  - Identify and train multiple potential ISB members for all board positions
  - Ensure pre-mishap planning is up-to-date, all required equipment is readily available, and a suitable work-center has been identified
  - Periodically exercise the ISB process, preferably in conjunction with a MARE.

# Chief of Safety - 2

**Safety  
Office**



**Interim  
Safety  
Board**

Sending  
out prelim  
reports, POC  
For ISB....

Gathering  
evidence,  
initial  
interviews, etc

# Chief of Safety - 3

- COS role during the ISB:
  - Ensure an appropriately tailored ISB is selected
  - Ensure a work-center is established, preferably in the same location as will be used by the permanent board, as quickly as possible
  - Work with the Incident Commander to restrict access and minimize disturbance to the scene once it has been declared safe
  - Make the gathering and preservation of physical and documentary evidence an absolute priority
  - Ensure reports are initiated and sent on time
  - Provide for a 24-hour point of contact for the ISB

# Chief of Safety - 4

- SIB Arrival

- Ensure maximum possible support is provided to the incoming SIB, including transportation, billeting, personal and professional equipment, and workspace.
- Arrange an orderly transition of custody of evidence and information gathered through both mass briefings to the entire SIB and one-on-one briefings conducted by their ISB counterparts, as appropriate.
- Orient the SIB members to the installation and the crash site as quickly as possible.
- Ensure ISB members withdraw promptly and finally when relieved by their SIB counterparts.

# Closing Out

- Chronicle SAR Mission
- Hand off to SIB Flight Surgeon
  - Notes
  - Pictures
  - Life support gear
  - Medical records
  - Dental records
  - 72-hr AND 14-day histories

# ISB/SIB Handoff

- Handoff briefing IAW AFPAM 91-211
- ISB members not to offer any theories, conjecture, or conclusions developed unless specifically asked
- Your unit should have a ISB/SIB hand-off briefing format ready now for any future ISB President

# ISBs and the Press





# Common ISB Errors

- Unit has not identified and trained potential ISB members
- Unit does not have the required equipment and work space readily available
- The unit does not practice convening an ISB
- Having an ISB that tries to “investigate” instead of protect and preserve evidence

# Summary

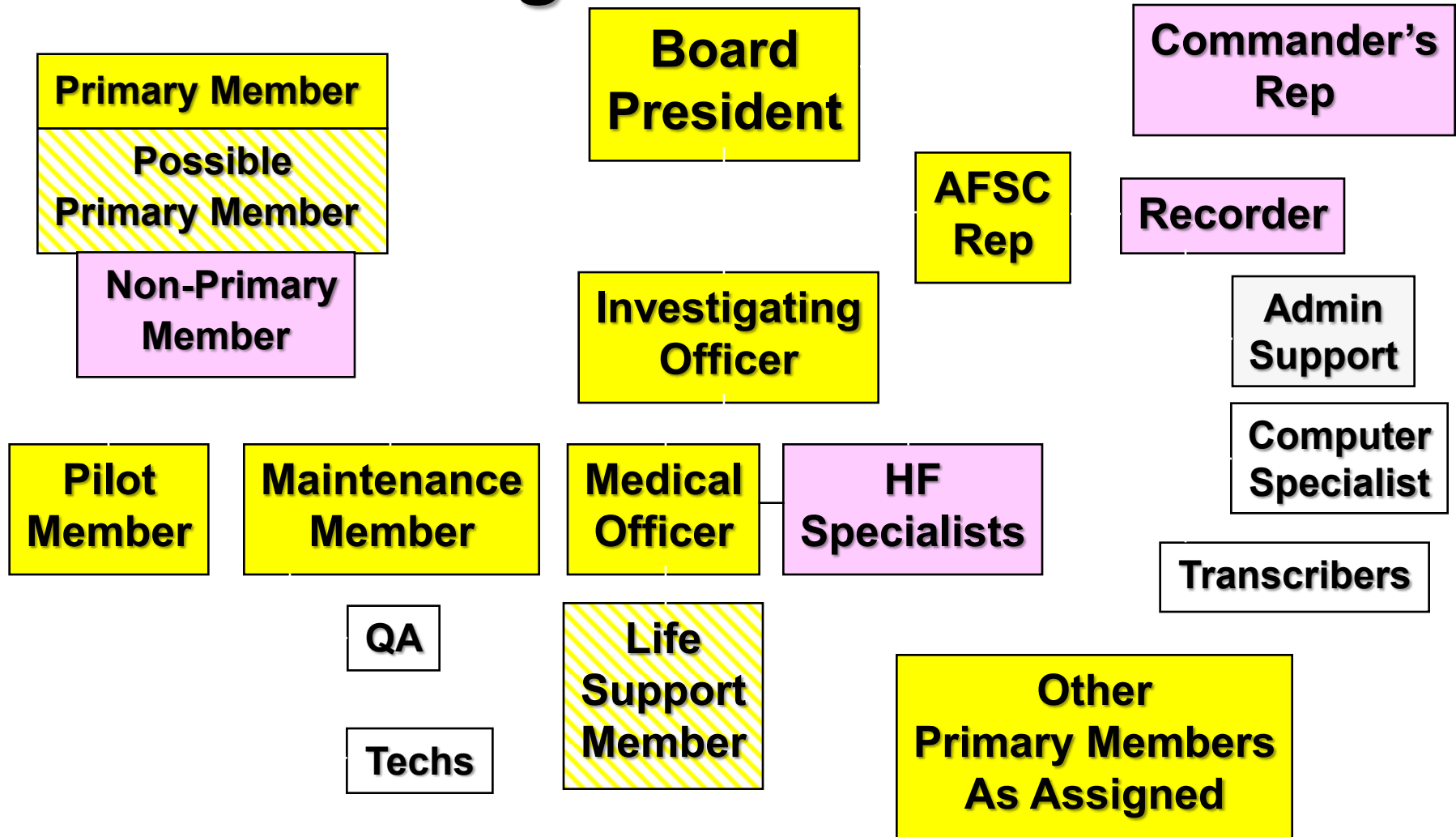
- The Interim Board
- Guidance and Preparation
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- Survivors
- Fatalities
- Role of the Chief of Safety
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# Permanent Board Flight Surgeon Duties

# Overview

- Board purpose and composition
- Preparation
- Getting started
- First visit to the mishap site
- Integration into the investigation
- Consultants
- Writing the report

# SIB Organization Basics



# The Permanent Mishap Investigation Board

- PURPOSE: Prevention of future mishaps
- COMPOSITION
  - President appointed by numbered AF
  - Wing tasked to provide other members
  - MAJCOM tasks MDG SGP to provide flight surgeon
  - Required voting members:
    - President
    - Investigating Officer
    - Pilot Member
    - Maintenance Member
    - Flight Surgeon

# The Permanent Mishap Investigation Board (Cont.)

- Optional Voting Members:
  - Life Support Officer
  - Air Traffic Controller
  - Unit Representative
  - Munitions Specialist
  - Weather Representative
  - AFOTEC Representative
- Required Nonvoting Members:
  - Recorder
  - FAA or NTSB if they desire participation
  - Test Organization if involved

# Permanent Board Products

- Messages
  - Final message at 30 days
- Briefings
  - Numbered AF
  - MAJCOM
- Report
  - Copies controlled
  - Limited use



# Preparation - Supplies

- Useful References:
  - AFI 48-123
  - AFPAM 91-211
  - Flight Surgeon Checklist
  - Aerospace Medicine Textbook
  - Aerospace Medicine Telephone Directory

# Preparation - Supplies

- Useful Items:
  - Camera with flash
  - Hand-held digital recorder
  - Ziplock bags and adhesive labels
  - Exam gloves
  - Work gloves
  - Moist towelettes
  - Graph paper
  - Tape Measure
  - GPS

# Preparation - Supplies

- Personal Items
  - Flight suits, ABUs
  - Foul weather gear
  - Field boots
  - Field hat
  - Sunscreen
  - Insect repellant
  - Personal First Aid Kit

# Preparation - Travel

- Assigned unit pays for the TDY
- Orders
  - Usually depart within 24 hours of notification
  - Assigned unit cuts orders
  - Variations authorized
  - Rental car

# Getting Started

- Contact Board President
- Contact Life Support Member
- Debrief IFB Flight Surgeon

# Surviving Aircrew

- Check on AFMES toxicology
- Spine x-rays if aircrew ejected
- Review medical records
- Physical examination
  - Review what has been done
  - Do your own exam
  - Include anthropometric measurements
  - Complete 72- hr and 14-day histories

# Fatally Injured Aircrew

- Check total body x-rays
- Autopsy arrangements
  - Pathologist
  - Photographs
- Review medical records
- Attend autopsy
  - Secure life support gear
  - Discuss mechanisms of injury
  - Preliminary list of diagnoses
  - Arrange for receipt of reports & photos

# Others Involved

- Others Involved in the mishap
  - Physical exam
  - Toxicology
  - 72-hr and 14-day history
- Search and Rescue (SAR) Information
  - How notified
  - Accurate times
  - Unit involved
  - Interviews



# First Visit to the Mishap Site

- Big picture
- Visit site of aircrew recovery
- Look at egress equipment
  - With life support member
- If aircraft impacted water:
  - Check wreckage as it comes in
  - Look for egress equipment
  - Look for controls:
    - Rudder pedals
    - Throttle
    - Stick handle

# The Investigation

- Stay current on findings of other board members
  - *Attend daily debriefs*
  - Participate in or review interviews
- Be alert for new players
  - May need toxicology
  - May need 72-hr or 14-day histories

# The Investigation (Cont.)

- Become familiar with critical human performance actions
  - Review pilot actions in simulator
  - Review maintenance:
    - Workload
    - Procedures
    - Ergonomics
    - Written guidance

# Human Factors Analysis

- Board discussion of human factors
- Flight surgeon should offer to lead discussion
  - Start with your own list of potential human factors
  - Use a consultant as needed
  - Repeat the discussion as more is learned

# Consultants

- When to consider getting a consultant
  - Theory you cannot confirm
  - To check your analysis
  - Out of ideas
- Only with the board president's approval
- Finding one
  - MAJCOM
  - AFISA life sciences
  - Direct

# Consultants

- Most common consultant is from Life Sciences Equipment Lab, now at Wright Patterson AFB, OH
  - POC's for Mishap Investigations (as of January 2013):
    - Geoffrey Shidler (Aerospace Engineer)
      - DSN: 986-8985 Comm:(937) 656-8985
    - John Goines ( Chief, LSEL)
      - DSN: 986-8981 Comm: (937) 656-8981
- 2060 Monahan Way, Building 17 Area B  
Wright Patterson AFB, OH 45433-7808

# Consultants

- Consultant report
  - Usually submitted in writing
  - Include in Tab Y
  - Or may be included in Life Sciences Narrative

# The Report

- Two Parts
  - Part I - Tabs A-S
  - Part II - Tabs T-Z (limited use)
- Flight surgeon's responsibilities
  - Tab Y with assistance of life support member
  - Assist with human factors portion of Tab T
- Computers are wonderful things
  - Request a laptop
  - Let someone else sweat the formatting



# Life Sciences Report – Tab Y Structure

- I. Part I
  - A. Brief Mishap Summary
  - B. Human Factors Related Issues
  - C. Life Support Issues
  - D. Injury Issues
  - E. Other Issues

# Tab Y Structure

- II. Part II - Non-factors Worthy of Discussion
- III. Life Sciences Reports
- IV. Consultant Reports
- V. Appendices

— Figure A4.1, AFPAM 91-211

# Summary

- Board purpose and composition
- Preparation
- Getting started
- First visit to the mishap site
- Integration into the investigation
- Consultants
- Writing the report
- Next slide for quiz instructions

- [Go to quiz](#)
- Enter your answers on the [answer sheet](#)
- Print only one answer sheet for entire course
- Press ESC to go back to main menu