US ARMY RDECOM - *ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (ARDEC)*

NATO & US FUZE ENGINERING STANDARDIZATION ACTIVITIES

(Fuze NDIA - Apr 04)

PRESENTED BY

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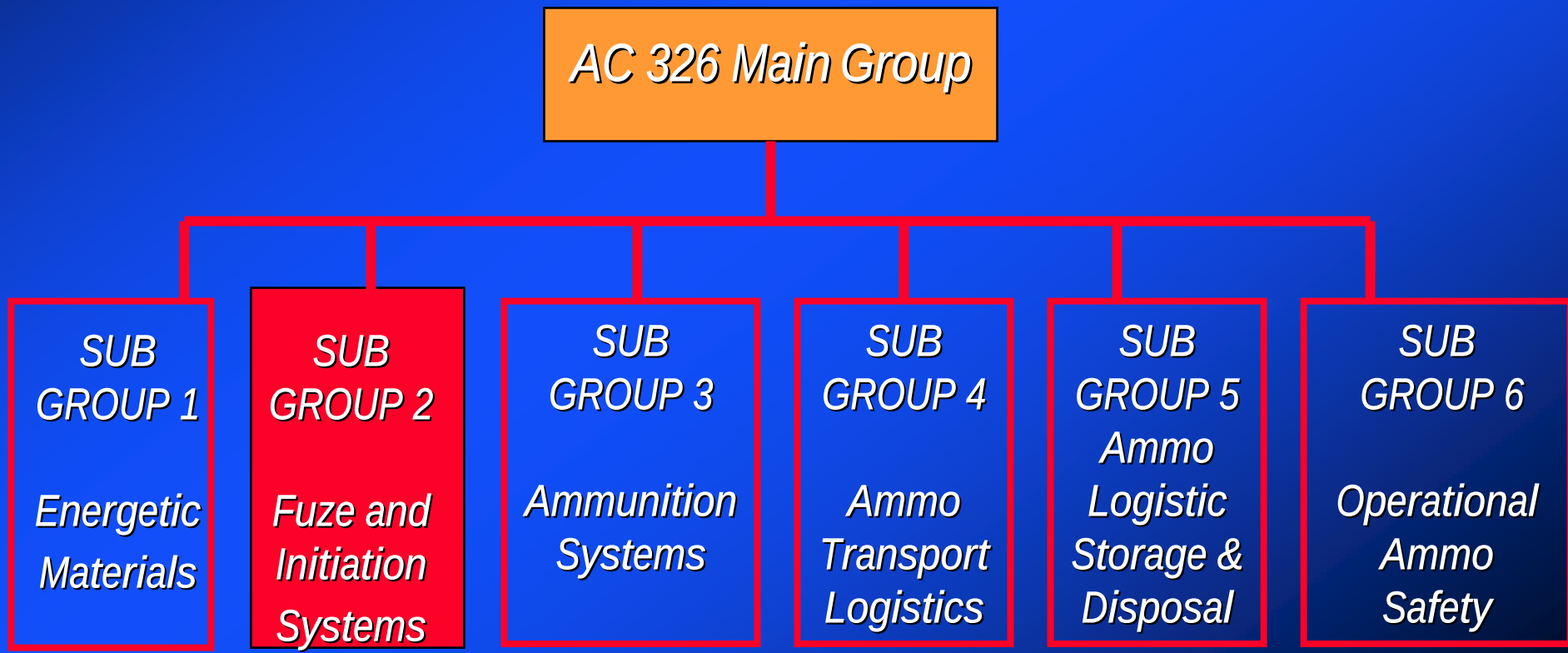
The NATO Fuze Group

NATO CNAD Ammunition Safety Group (CASG)
AC326



NATO Fuze & Initiation Systems STANAGS

2916	Nose Fuze Contours and Matching Projectile Cavities for Artillery and Mortar Projectiles
4157	Fuzing Systems: Test Requirements for the Assessment of Safety and Suitability for Service
4187	Fuzing Systems: Safety Design Requirements
4326	NATO Fuze Characteristic Data (AOP 8)
4363	Fuzing System - Development Testing for the Assessment of Lead and Booster Explosive Components
4368	Electric and Laser ignition System for Rocket and Guided Missile Motors; Safety Design Requirements
4369	Design Requirement for Inductive Setting of Electronic Projectile Fuzes
4547	DESIGN REQUIREMENTS FOR INDUCTIVE SETTING OF MEDIUM CALIBER ELECTRONIC PROJECTILE FUZES
4560	ELECTRO-EXPLOSIVE DEVICE, ASSESSMENT AND TEST METHODS FOR CHARACTERIZATION
4593	Fuzing Systems - Design Requirements for Inductive Setting of Guidance Data

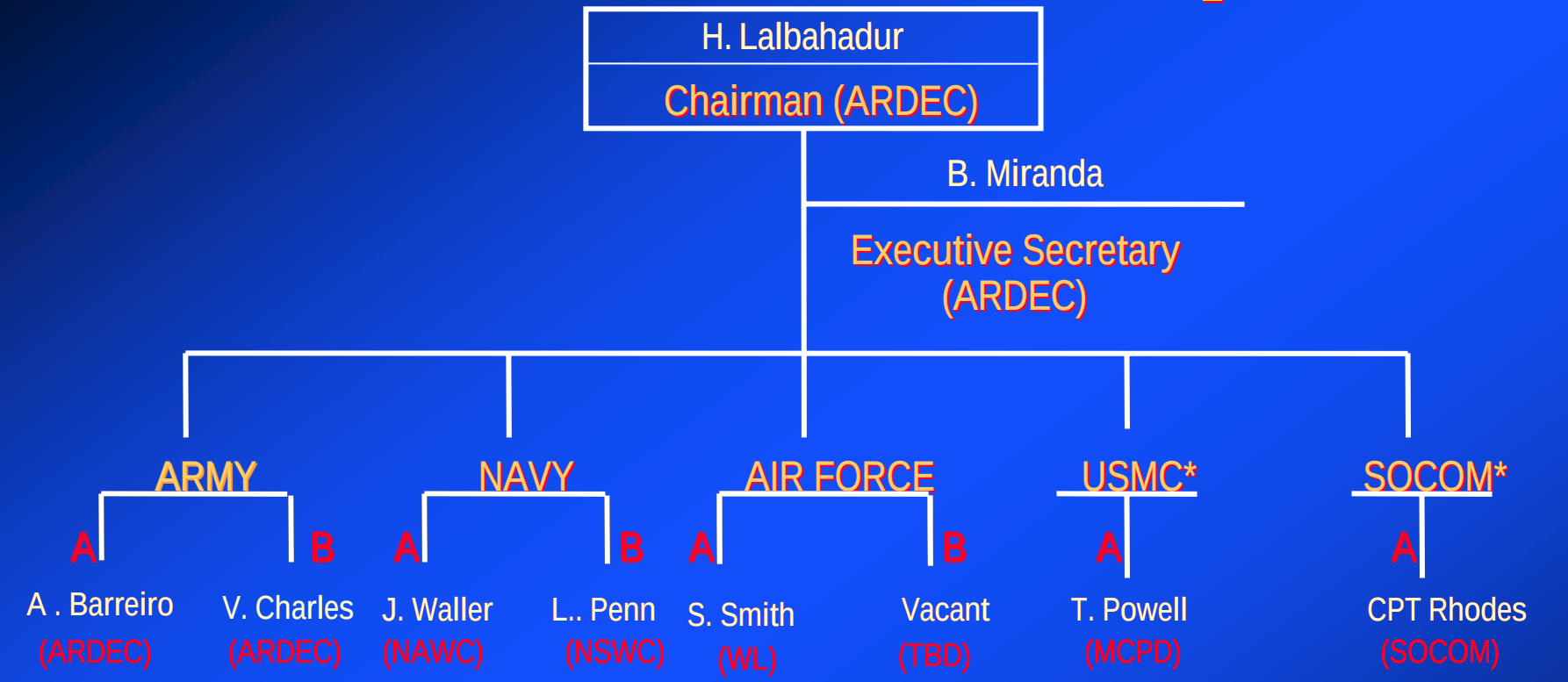
NATO Fuze & Initiation Systems AOPs

8	NATO Fuze Characteristics Catalogue
16	Fuzing Systems-Design Guidelines for STANAG 4187
20	Manual of Tests for the Safety Qualification of Fuzing Systems
21	Fuzing Systems: Manual of Development Characterization and Safety Test Methods and Procedures for Lead and Booster Explosive Components
22	Design Criteria and Test Methods for Inductive Setting of Electronic Projectile Fuzes
42	Integrated Design Analysis for Munition Initiation Systems and other Safety Critical Systems
43	Electro-Explosive Devices: Test Methods for Characterization: Guidelines for STANAG 4560

U.S. Implementation of NATO Fuze Documents

- *WHY: Mandated by DoD*
- *WHEN: Now, upon ratification by the US (Does NOT have to be published by NATO)*
- *HOW: The DoD Fuze Engineering Standardization Working Group (FESWG, Chartered Under OUSD, DoD Standardization Office)*
- *WHERE: US Personnel can access US ratified documents on the DoD Index of Specifications and Standards (DODISS) Website*

DOD FESWG Membership



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A - Departmental Representatives

B - STDZN OFC Representatives

** No STDZN OFC Representative*

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DoD FESWG Mission

Serve as the US body for Fuze & Initiation Systems Engineering Standardization. Duties include:

- *Establish and Maintain Fuze & Initiation Systems Engineering Standards*
  - *US Documents*
  - *NATO Documents*
- *Review and Standardize for safety New Technology (e.g. MEMS)*
- *Interact with the Munitions Industry*
- *Advise the Safety Boards*

Fuze MIL - STD's & Handbooks

MIL-STD-1316	Fuze Design, Safety Criteria for
MIL-STD-331	Fuze and Fuze Components, Environmental and Performance Tests for
MIL-STD-333	Fuze, Projectile and Accessory Contours for Large Caliber Armaments
MIL-HDBK-145	Fuze Catalog - Active Fuzes
MIL-HDBK-146	Fuze Catalog - Limited Standard, Obsolescent Obsolete, Terminated and Cancelled Fuzes
MIL-HDBK-777	Fuze Catalog - Procurement Standard and Development Fuze Explosive Components
MIL-HDBK-504	Guidance on Safety Criteria for Initiation Systems
MIL-STD-1901	Munition Rocket and Missile Motor Ignition System Design, Safety Criteria for
MIL-STD-1911	Hand - Emplaced Ordnance Design, Safety Criteria for
MIL-DTL-23659	Initiators, Electric, General Design Specification for

US Implementation of Key STANAGs

- STANAG 4187 Edition 4 will supercede MIL-STD-1316E
  - 49 new, revised or modified paragraphs and definitions
  - One new annex: smart minefields (antitank)
- STANAG 4187 Ed 4 will be available in DODISS/Assist
- A cover memo will inform reader that 4187 Ed 4 has superceded 1316E
- However, MIL-STD-1316 will be retained:
  - To preserve unique US requirements
  - To serve as placeholder for new requirements until these can be incorporated into STANAG 4187
- There will now be a new MIL-STD-1316F
- New hierarchy: STANAG 4187 Ed 4, then MIL-STD-1316F

US Implementation of Key STANAGs

- New MIL-STD-1316F will contain:
  - EOD requirements
  - Firing energy dissipation – (30 min requirement)
  - Paint standard callout for “S” and “A” indicators
  - List of approved secondary explosives
  - New test for showing compliance with 500v requirement
  - Progressive arming test requirement
  - Electrical initiator sensitivity requirements (MIL-DTL-23659A)
  - MIL-STD-1316E software/firmware requirements
  - Some 1316E definitions associated with above requirements

US Implementation of Key STANAGs

- Same process for STANAG 4368 and MIL-STD-1901(rocket & missile motor initiation systems):
  - Hierarchy:
    - STANAG 4368 Edition 3
    - MIL-STD-1901B
- Same Process for STANAG 4497 and MIL-STD-1911 (hand-emplaced munitions)
  - Hierarchy:
    - STANAG 4497 Edition 2
    - MIL-STD-1911B
- OTHER STANAGS TO BE ACCEPTED AS STANDALONE