**ALL UXO MAY BE HAZARDOUS IF DISTURBED**
**DO NOT TOUCH – TAKE A PHOTO – MARK THE LOCATION – CALL THE POLICE**

## AIRCRAFT PROJECTILE – 20MM HIGH EXPLOSIVE INCENDIARY

### Description

- The 20mm High Explosive Incendiary (HE/I) is a projectile primarily fired by the automatic guns of numerous Australian/Allied aircraft. These munitions have been used from WWII to the present.

- RAAF aircraft fitted with the 20mm gun included the CAC Boomerang (1940s), Bell Airacobra P-400 (1940s), Supermarine Spitfire (1940s), DH 98 Mosquito (1940s-50s), DAP Beaufighter (1940s-50s), Avro Lincoln (1940s-50s), Gloster Meteor (1940s-early 1960s), DHA 100 Vampire (1950s-60s), De Haviland Sea Venom (1950s-70s), McDonnell-Douglas F-4E Phantom (1970s), McDonnell-Douglas F/A-18A Hornet Present (1980s to Present).

- RAN aircraft fitted with 20mm guns included the Fairey Firefly, De Havilland Sea Venom, Hawker Sea Fury and McDonnell Douglas A4G Skyhawk (1960s-80s).

- The HE/I projectile is designed to damage its target in one or both of two ways: via a high-explosive charge and/or via its incendiary (fire-causing) effects. Variants of the HE/I projectile may include (not all may have been used by aircraft):

    o **High Explosive, Incendiary** (HE/I) – UK munitions usually red and filled with TNT; US with CE (red) or Pentolite (pink).

    o **High Explosive, Incendiary, Tracer** (HE/I/T) – UK munitions green and filled with TNT.

    o **Semi-Armour Piercing, High Explosive, Incendiary** (SAP/HE/I) – TNT; red with white tip.

- Unexploded items of this type are found throughout Australia mostly in/near areas used for aircraft Air-to-Ground firing practices or on air force bases – typically on or just below the surface.

### Technical Data

A variety of differing models ('Marks' or 'Mk') have been used in Australia – both Commonwealth and US designs. Despite minor differences in the various Marks, they are all approximately the same in their appearance, composition and method of operation.

- Munition length     :    approx. 175-185mm

- Projectile length     :    approx. 80-85mm

- Projectile diameter     :    maximum diameter 20mm

- Total weight     :    Munition – approx 260 grams; projectile – approx 130 grams.

- Fuse/Burster     :    Contains a fuse and explosive which can be easily detonated.

- Filling     :    2-14 g high explosive (e.g. TNT, RDX or CE) and an incendiary composition.

- Identification     :

    o The projectile is typically steel and may have one or more bands of colour (depending on the type of munition and country of origin).

    o Red or yellow colouring or bands were most often used to denote HE munitions however other colours may have been used or colours may have faded over time. **Treat all found munitions as dangerous**.
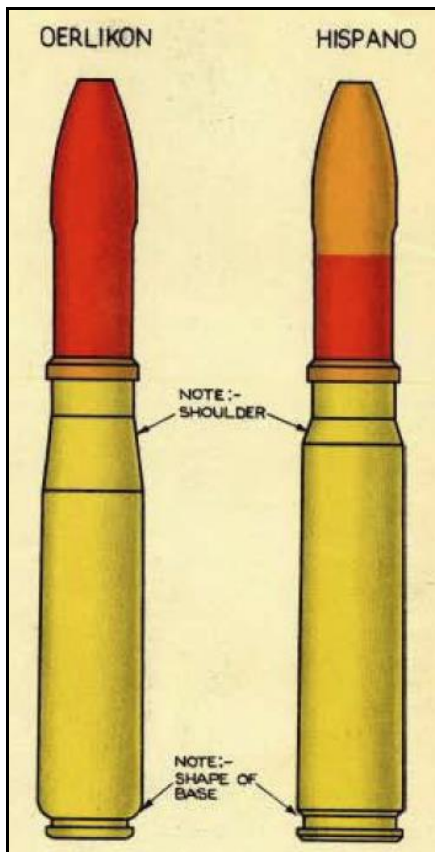
## Images



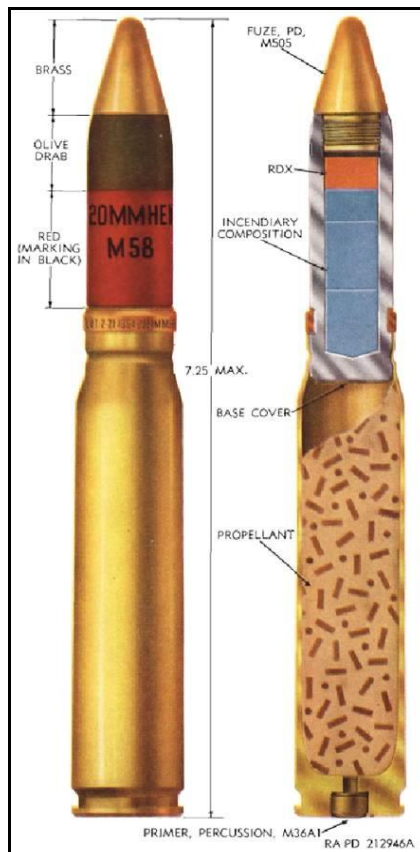**Figure 1 - WWII-era 20mm HE/I (L to R) - UK colour, US colour**



**Figure 2 - Example 20mm HE/I (US)**



**Figure 3 - Size comparison of common WWII aircraft gun ammunition (L to R) - .303", .5" and 20mm Hispano**



**Figure 4 - Belt-fed 20 mm Hispano gun on a Hurricane aircraft**



**Figure 5 - 20mm ammunition from disposal activity.**

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## AIRCRAFT PROJECTILE – 30MM HIGH EXPLOSIVE INCENDIARY

### Description

- The 30mm High Explosive Incendiary (HEI) is a projectile fired by the automatic guns of numerous Australian/Allied aircraft. These munitions have been used from WWII to the present.

- Australian aircraft fitted with the 30mm gun included the CAC Sabre (1950s-60s; 2 x 30mm Aden cannons), Dassault/GAF Mirage (1960s-80s; twin 30mm DEFA cannons), Eurocopter Tiger (2000 to Present; 30mm cannon in chin turret) and BAE Hawk 127 (2000 to Present; 30mm Aden cannon).

- The 30mm projectile is also used by other Allies' equipment exercising in Australia e.g. US and Singaporean AH-64 Apache helicopter with their LW30mm M230 Chain Gun, 30mm Mk44 Bushmaster II on the US Navy San Antonio-class amphibious transport dock, Freedom-class and Independence-class Littoral Combat Ships and the Singaporean Army Bionix II armoured fighting vehicle (30mm Mk44 Bushmaster II).

- The HEI projectile is designed to damage its target in one or both of two ways: via a high-explosive charge and/or via its incendiary (fire-causing) effects.

- Unexploded items of this type are most often found in/near areas used by air forces for aircraft firing practices or air force bases – typically on or just below the ground surface.

### Technical Data

A variety of differing models have been used in Australia – both Commonwealth and US designs. Despite minor differences, they are all approximately the same in their appearance, composition and method of operation.

- Munition length       :   approx. 195-200 mm (Australia/Commonwealth/NATO variants)
- Projectile length     :   approx. 85-90 mm
- Projectile diameter   :   maximum diameter 30 mm
- Total weight          :   Munition – approx 490-500 grams, Projectile – approx 250 g.
- Fuse/Burster          :   Contains a simple explosive fuse which can be easily detonated.
- Filling               :   approx 25-50 g high explosive and an incendiary composition.
- Identification        :

  o   The body of the munition is usually plain brass however the projectile may have one or more bands of colour (depending on the specific type of munition).

  o   Red or yellow bands/stripes were most often used to denote HE munitions however other colours may have been used or colours may have faded over time. **Treat all found munitions as dangerous**.

**Images**



Figure 1 - Size comparison of common conventional rifle ammunition and 30mm aircraft ammunition



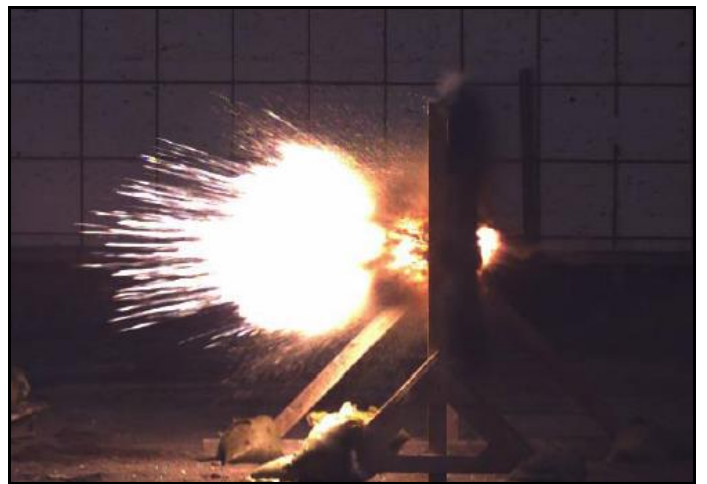Figure 2 - ADF personnel service a Tiger helicopter's 30 mm cannon



Figure 3 - Effects of 30mm HEI-T projectile



Figure 4 - 30mm practice round found on Quail Island, NT fired from a Mirage fighter



Figure 5 - Expended 30mm projectiles on an air force firing range awaiting collection