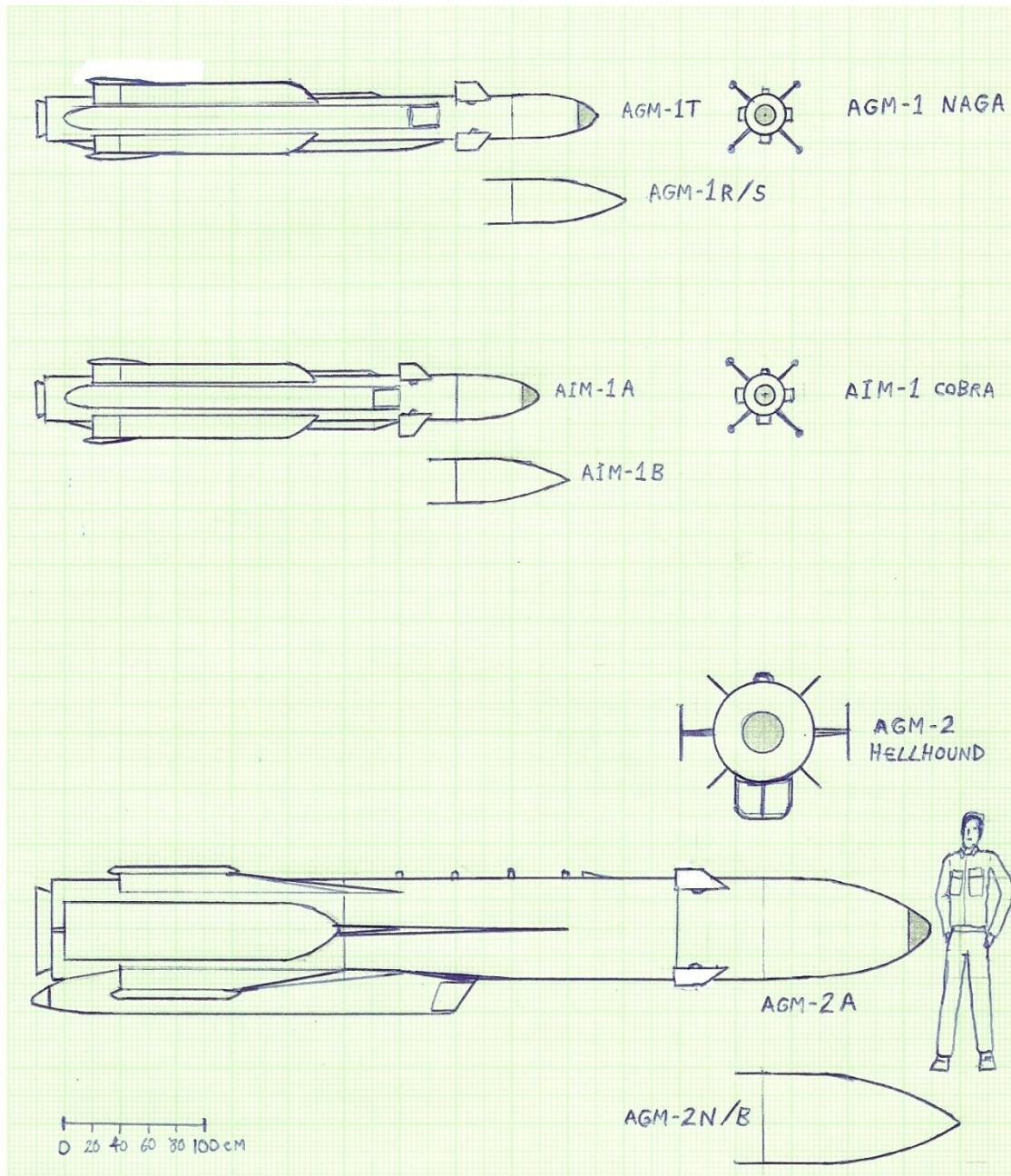


AIM-1 COBRA / AGM-1 NAGA / AGM-2 HELLHOUND



AIM-1 COBRA :

- Short-medium range air-to-air missile.
- Length : 3.6 m (AIM-1A) / 3.8 m (AIM-1B).
- Diameter : 305 mm (main body)
- Span of wings : 70 cm (overall width= 50 cm).

- Height overall : 50 cm.
- Weight : 350 kg (operational, ready to fire).
- Propulsion : One solid rocket booster motor, with integrated ramjet second-stage engine using the rocket motor casing as burn chamber for mixture of air and vaporised kerosene fuel. Three air scoops for ramjet open when solid fuel burned out of the way. Solid rocket motor boosts missile on launch to speed of Mach 3.2. Ramjet second-stage engine then sustains top speed and maneuvering ability until all fuel is burned. Exhaust nozzle is gimballed in order to use thrust vectoring for high-G maneuvers.
- Guidance : Cooled lead sulfide I.R. seeker (AIM-1A) / semi-active radar seeker (AIM-1B). I.R. seeker head cooled by circulation of cold CO₂ gas.
- Warhead : 60 kg HE-Fragmentation-Incendiary (tungsten-steel ball bearings and powdered aluminum jacket around 25 kg RDX high explosive charge). Proximity and contact fuzed.
- Maximum speed : Mach 3.2 (sustainable over 25 km until ramjet burnout).
- Range (effective) : 4.5 km (I.R. AIM-1A variant, due to I.R. seeker sensitivity limitations) / 25 km (semi-active radar AIM-1B variant).
- **Variants :**
 - **AIM-1A** : Short range, I.R.-guided 'fire and forget' air-to-air missile.
 - **AIM-1B** : Medium range, semi-active radar air-to-air missile.

AGM-1 NAGA :

- Medium range air-to-surface missile.
- Length : 4.0 m (AGM-1T) / 4.2 m (AGM-1R and AGM-1S).
- Diameter : 305 mm (main body)
- Span of wings : 70 cm (overall width= 50 cm).
- Height overall: 50 cm.
- Weight : 405 kg.
- Propulsion : One solid rocket booster motor, with integrated ramjet second-stage engine using the rocket motor casing as burn chamber for mixture of air and vaporised kerosene fuel. Three air scoops for ramjet open when solid fuel burned out of the way. Solid rocket motor boosts missile on launch to speed of Mach 2.8. Ramjet second-stage engine then sustains top speed and maneuvering ability until all fuel is burned. Exhaust nozzle is gimballed in order to use thrust vectoring for high-G maneuvers.

- Guidance : Passive radar-homing + inertial (AGM-1R) / Inertial initial run, final run on active radar acquisition (AGM-1S) / Electro-optical TV-LLLTV with datalink + inertial (AGM-1T). Internal inertial navigation platform ensures that missile initially keeps on the target heading known at launch, then keeps missile on a straight run on last known heading if seeker head loses track of target. Radar altimeter keeps missile to predetermined altitude for approach run. Datalink allows weapons officer in the launch aircraft to track and guide the missile on target.
- Warhead : 100 kg HE-Fragmentation (AGM-1R) / 100 kg Semi-Armor Piercing-High Explosive (AGM-1S) / 100 kg Armor/Concrete Piercing-High Explosive (AGM-1T). Proximity and contact fuzes for AGM-1R. Delayed contact fuze for AGM-1S and AGM-1T.
- Maximum speed : Mach 2.8 (sustainable over 35 km until ramjet burnout).
- Range (effective) : 35 km. Maximum range of 40 km on gliding final run.
- **Variants :**
 - **AGM-1R** : Medium range anti-radiation air-to-surface missile.
 - **AGM-1S** : Medium range anti-ship air-to-surface missile.
 - **AGM-1T** : Medium range hard target air-to-surface missile.

AGM-2 HELLHOUND :

- Long range air-to-surface missile.
- Length : 6.4 m (AGM-2A) / 6.6 m (AGM-2B and AGM-2N).
- Diameter : 80 cm (main body).
- Span : 1.2 m (overall).
- Height overall: 1.0 m.
- Weight : 2,000 kg (AGM-2N) / 2,250 kg (AGM-2A and AGM-2B).
- Propulsion : One solid rocket booster motor, with integrated ramjet second-stage engine using the rocket motor casing as burn chamber for mixture of air and vaporised kerozene fuel. Chin air scoop for ramjet opens when solid fuel burned out of the way. Solid rocket motor boosts missile on launch to speed of Mach 2.6. Ramjet second-stage engine then sustains top speed and maneuvering ability until all fuel is burned. Exhaust nozzle is gymbaled in order to use thrust vectoring for high-G maneuvers.
- Guidance : Inertial (AGM-2N) / Inertial initial run, final run on active radar acquisition (AGM-2B) / Electro-optical TV-LLLTV with datalink + inertial (AGM-2A). Internal inertial navigation platform ensures that missile initially keeps on the target heading known at launch, then keeps missile

on a straight run on last known heading if seeker head loses track of target. Radar altimeter keeps missile to predetermined altitude for approach run. Datalink allows weapons officer in the launch aircraft to track and guide the missile on target.

- Warhead : 1,000 kg Armor/Concrete piercing-High Explosive (AGM-2A) / 1,000 kg Semi-Armor Piercing-High Explosive (AGM-2B) / W7 nuclear warhead (750 kg, 8-61 kiloton yield) (AGM-2N). Delayed contact fuze for AGM-2A and AGM-2B. Proximity and altimeter fuzes for AGM-2N.
- Maximum speed : Mach 2.6 at sea level (sustainable until ramjet burnout).
- Range : 120 km (AGM-2A and AGM-2B) / 160 km (AGM-2N).
- **Variants :**
 - **AGM-2A** : Long range heavy hard target air-to-surface missile.
 - **AGM-2B** : Long range heavy anti-ship air-to-surface missile.
 - **AGM-2N** : Long range tactical nuclear air-to-surface missile.