

# Aden 30mm aircraft cannon



Royal Small Arms Factory Enfield

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## Description

The Aden is a 30mm Automatic Gas Operated Gun of the revolver type, specifically for use in the Aircraft Interceptor Role (Air to Air), and in air attack on ground targets. It was developed by ADE (RARDE) at the Royal Small Arms Factory, Enfield, and has excelled as the prime conventional armament in a variety of aircraft over a number of years.

The present Mk. V Aden is the result of progressive product improvement since the introduction of the Mk. I version in the early 1950s.

The gun is compact and simple in design, the whole assembly being contained within the Cradle unit, installation mounting points are at the rear and at the front barrel entry position of the Cradle. Mounting of the gun is possible at any angle through 360° on the longitudinal axis to suit the specific aircraft installation requirement and left or right hand feed versions are available.

Cocking is pneumatic, with provision for manual operation, and the ammunition which is belt fed (disintegrating link) is electrically fired.

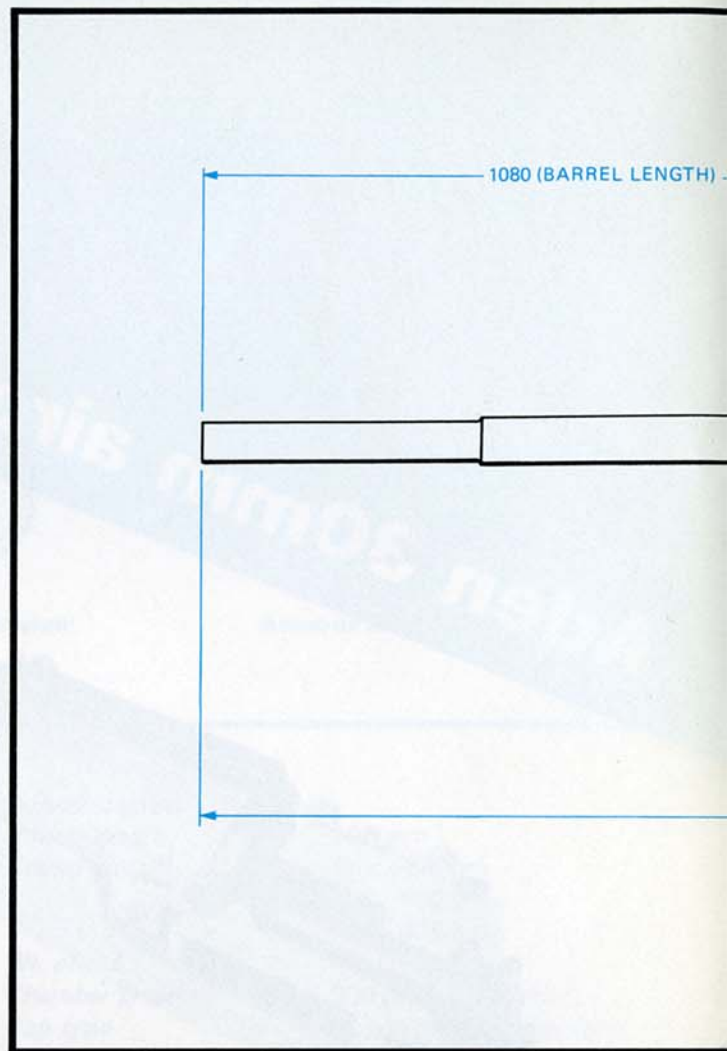
## Gun functioning

A cylinder (revolving drum) having five cartridge chambers, into which the cartridges are loaded in two stages, is indexed by the movement of a gas operated slide. Firing takes place when a round is in line with the barrel, the whole mechanism being safely locked at the moment of firing—a round cannot be fired if the barrel/cylinder are not correctly locked in position, and with a round in line with the barrel. When a round fires, the gas pressure passing through the barrel gas port acts via a piston onto a slide mechanism, which, travelling rearward within the Cradle unit revolves the breech cylinder and feed sprockets, bringing a round into position for feeding into a chamber. The slide mechanism is then moved forward by the action of return springs, further indexing the cylinder and feeding a round into the chamber and ejecting the spent case.

## Repair, modification and inspection of Mk. IV & Mk. V Aden 30 mm gun

The Aden 30 mm gun can be repaired and modified in accordance with British Specification AIR 1424. All components and details are examined and gauged to determine their suitability for re-use. All rejected components are replaced with new. Repair work is carried out in accordance with the specification. All components and, where relevant, assemblies and sub-assemblies are modified as far as possible in accordance with the latest drawing issues. The weapon is fully functioned and proofed before return to the customer.

Guns can be provided on an exchange basis by RSAF Enfield with customers receiving a refurbished gun as a replacement for a repairable weapon, thereby reducing both cost and delivery time-scale.



## Aden Mk. V

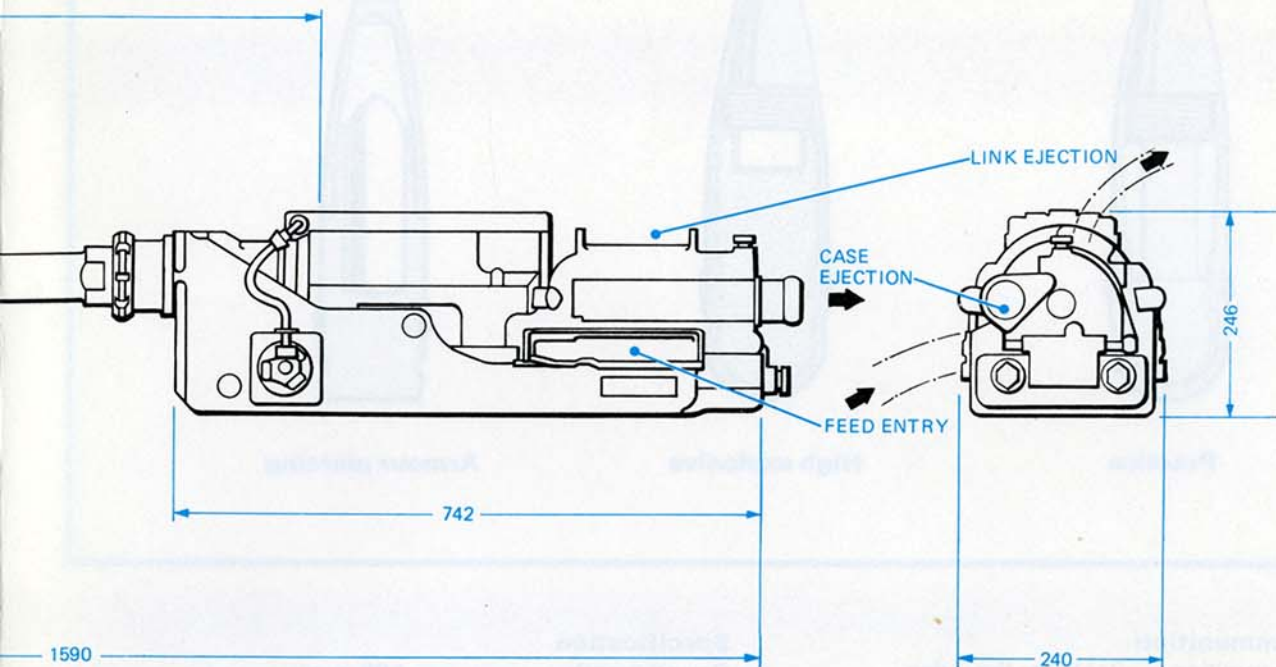
The Mk. V, incorporating the new Mk. III cradle, is the latest development of the Aden. It has been updated specifically to improve its reliability and increase its operating life. Several modifications have been introduced the major being:

- Mk. III cradle. Manufactured from a new aluminium alloy, specially selected to withstand high residual and working stresses, resulting in a longer in-service life.
- Modified Gas System. The redesigned gas system has improved the Aden's reliability and ensures that its rate of fire is maintained between 1200/1400 SPM.

The development of the Aden System is of a continuous nature with RSAF undertaking specific customer requirements. Recent design modifications include:

- Increased protection from RF hazards
- Pilot controlled recocking
- Increased rate of fire to 1500/1700 SPM.

**The Aden is used on British and Allied aircraft The Mk. V, currently in service on Harrier, Hawk and Jaguar, has been selected for future UK aircraft development projects.**



### Gun Mk. V Specification

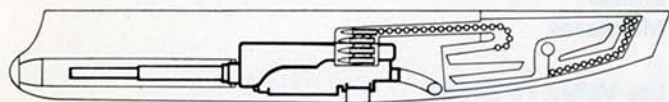
<i>Calibre</i>	30 mm
<i>Gun length</i>	1590 mm
<i>Total gun weight</i>	87 Kg
<i>Barrel length</i>	1080 mm
<i>Barrel weight</i>	12.25 Kg
<i>Rifling</i>	R.H. Progressive Parabolic Twist = 16 Grooves

<i>Muzzle velocity</i>	790 m/s
<i>Rate-of-fire</i>	1200/1400 SPM
<i>Recoil load</i>	31.4 kN
<i>Cocking</i>	Pneumatic
<i>Typical system weight</i>	(Gun + 200 linked rounds) 196Kg
<i>All fire voltage</i>	26V dc compatible with all current UK aircraft
<i>Supply voltage</i>	400 Hz 80–115V rms

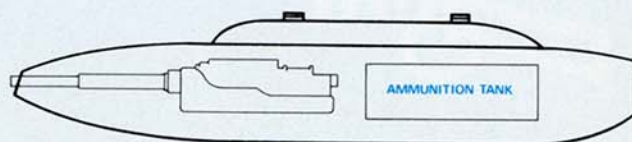
### Typical pod configurations

Because of its compact design Aden requires comparatively small installation space. It can be fitted into the main body configuration as an integral part of the aircraft build, or separately installed

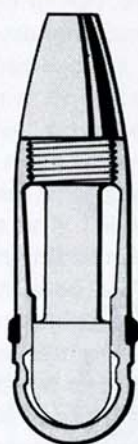
complete with ammunition load, in a pod which is attachable to the under fuselage or wings. Pods may be of the Blister or Pylon type; typical pod installations are shown above.



BLISTER



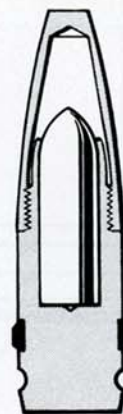
PYLON



**Practice**



**High explosive**



**Armour piercing**

### 30mm Aden Ammunition

The range of ammunition available for the Aden comprises Practice, High Explosive and Armour Piercing (Hard Core).

The Practice Round also has a useful penetrative capability.

The H.E. Round, which has a delay fuze, has a fairly low penetrative capability, being primarily a high blast type H.E. round. It is effective against aircraft structures, M.T. etc.

The A.P. Round has a tungsten carbide core, and has a very useful performance against battlefield targets excluding battle tanks.

### Specification

<i>Round length</i>	198 mm
<i>Round weight</i>	Prac. 440 gm
	H.E. 496 gm
	A.P. 495 gm
<i>Wt. of H.E.</i>	48 gm
<i>Chamber pressure</i>	300 MN/m <sup>2</sup> (copper)
<i>Cap type</i>	Conducting Composition
<i>All fire voltage</i>	26V dc



Enquiries concerning the Aden 30mm aircraft cannon should be addressed to:

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