

Brief history and description of missile

Vietnam War proved air-to-air IR guided missiles still had a long way to go before they become truly effective weapon. Obstacles on the way were: narrow zone of intercept, poor maneuverability, and g limit for launch sequence.

At the end of 1960s Russia, France and USA proceeded simultaneously with development of a missile that would overcome those problems. Common knowledge has it France got there first with their R550 Magic in 1975. In reality, Soviet engineers beat all the others by 2 years.

Strela-1 (9M31) handheld surface-to-air missile general arrangement was a starting point. But final R-60 was 1.5x larger and heavier. This means it is still a very small missile, but also shows how little of Strela-1 concept is left.

This missile takes full advantage of novel aerodynamics features - employing small control surfaces augmented by additional fins that decrease stability and thus increase maneuverability.

Diminutive size dictated a rather non-muscular, 3kg warhead. To get most of it, the detonation should occur as close to the target as possible. Therefore R-60's warhead is located well forward missile fuselage. Modified R-60M increased warhead weight to 3.5kg.

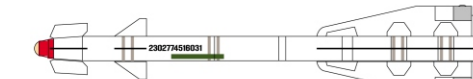
The range is a not very impressive 7km at 35000ft (with minimal launch distance as low as 200-250m), but small size means aircraft can be armed with more missiles. Dual launchers were developed (APU-60-II) and widely used.

R-60 is easily adaptable to various platforms. It can be seen under wings of MiG-21, -23, -25, -27, -29s, -31, Su -15, -17s, -24, -25, -27s, but also Ka-50/52 and Mi-28 helicopters.

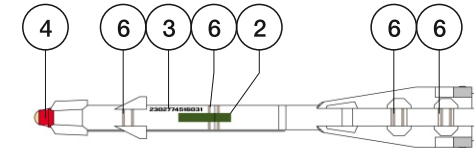
Your average Aphid missile will most probably be satin white, with very little stenciling. There might be some red bands around front section indicating live warhead.

Training missiles can be easily distinguished by three black stripes at the back of otherwise white body, as well as lack of fins and control surfaces.

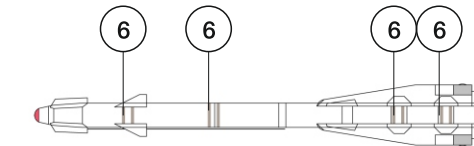
Colors and markings



Default R-60 in 45° rotated view presenting serial no location ~in axis of fins



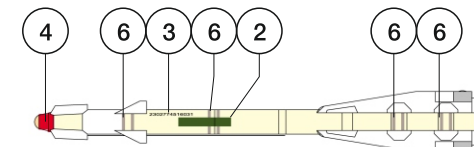
Default R-60 in satin white, with silver roller tabs and pale orange seeker head



R-60 with inert warhead



Training R-60, notable lack of fins and wings



Slight tonal variations between sections possibly due to storage conditions, pale yellow ~FS33798