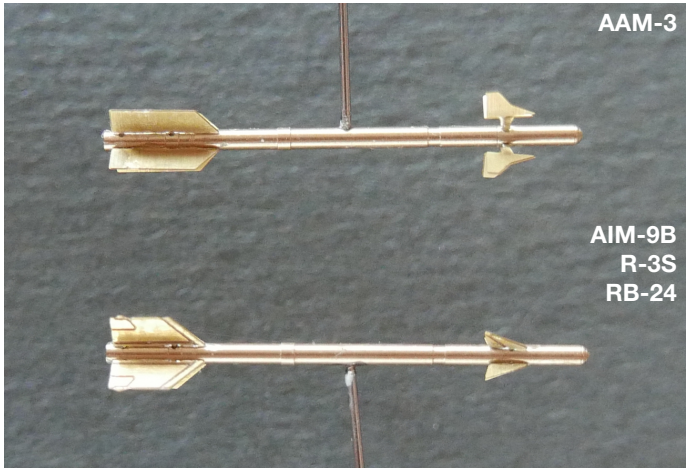
SO11442
1/144 AIM-9B Sidewinder / R-3S (AA-2 Atoll-A) / Rb 24 / AAM-3

Shelf Oddity



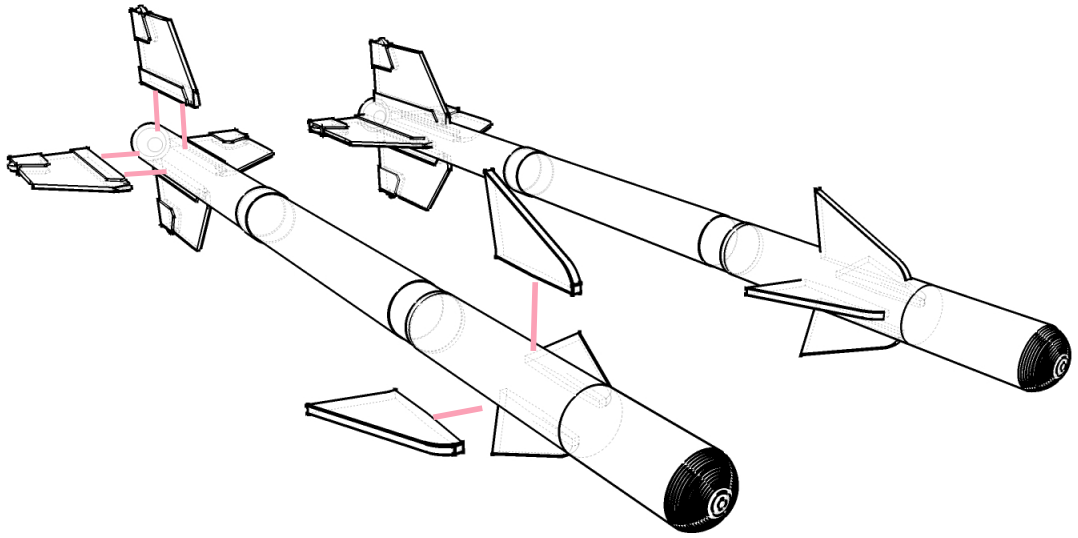
This is a set for an experienced modeller. We provide you with really small parts, so try not to swallow it, this is carpet crawlers' business after all.

The construction of the missile is pretty basic - have your end result looking as on photo above and you're there. We trust you can handle it. Just remember to keep fin attachment pins on the proper side of the blade while cutting out photoetched parts. Those pins should make your job fitting fins to body much easier.

Missile body has two additional slots for attaching to pylon/launcher, a template to get those slots aligned on launcher is provided on the edge of photoetched fret.

As for painting and markings - AIM-9s give plenty to choose from. Use your reference photos for desired scheme and exact colors. Actually, always use your reference photos!

Assembly scheme



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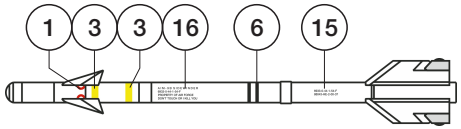
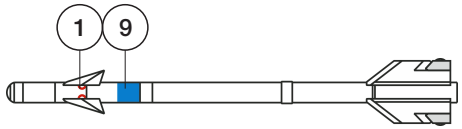
Brief history and description of missile

Dr William B. McLean was the man who figured that lead-sulphide proximity fuses that were sensitive to IR radiation generated by heat could be just as good at homing at a target as they were at exploding a warhead near it. It was a neat idea, followed by five years of intensive work to get the thing into feasible form. Design that emerged was simple yet effective. A parabolic mirror spinning gyroscopically at 4,200 rpm inside the rocket's transparent nose searched for an IR source. The distance of an infrared blip's reflection from the axis of spin indicated its angle-off; current from the centrally mounted lead-sulphide detector kept the "eye" on target via electromagnets around its rim and controlled the missile's canard guide fins. Future astronaut, Walter Schirra remembered his visit to McLean lab at China Lake: "Dome-shaped device, made of glass….a man-made eyeball," he recalled. "I was a cigarette smoker in those days, and I had one in my hand. As I crossed the room, I noticed that the eyeball was tracking me."
Since missile roll would interfere with the gyro's spin, McLean's team invented "rollerons" — tailfin-mounted, airstream-driven gyro wheels whose spin counteracted the missile's. As simple and as effective as it gets.
The last touch was wiring the seeker to aim not where the target was, but where it would be. This can't be overstated. More than 60 years ago, when your regular calculator occupied two rooms full of vacuum tubes merely to calculate ballistic trajectories, Bill McLean's China Lake team — with just 14 tubes and fewer than 24 moving parts, in a package less than 10 feet long, 5 inches across and weighing 160 pounds – invented fire-and-forget missile that was simple and reliable.
In May 1956 AAM-N-7 Sidewinder 1 entered US Navy service. After unification of designation system in 1963 it became AIM-9A. USAF quickly adopted the missile, their variant was called Sidewinder 1A or GAR-8, which later translated into AIM-9B, used throughout the services.

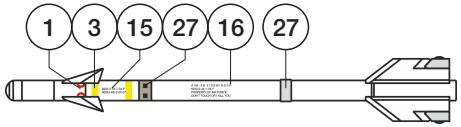
Colors and markings



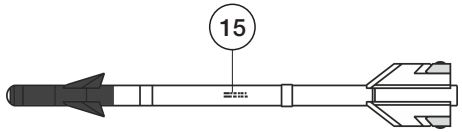
AIM-9B in overall white.



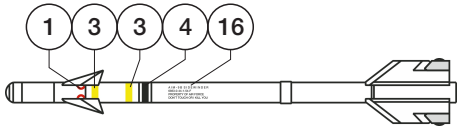
Inert AIM-9B in overall white.



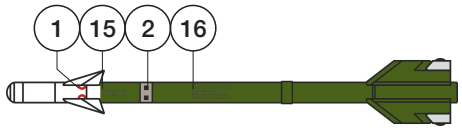
AIM-9B in overall white.



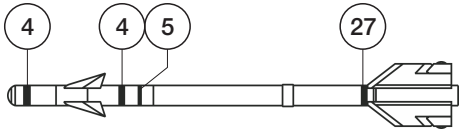
AIM-9B in overall white but black nose.



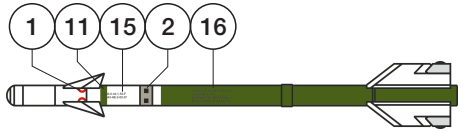
Guess what? AIM-9B in overall white.



Rb 24



Surprise-surprise. AIM-9B in overall white.



Rb 24

Colors

Most AIM-9B you'll see in photos are white with some color banding. Basic rules say yellow indicates live warhead and blue is general sign of an inert missile. You will soon find there is more variation. Much more.
For some time (late 50s / early 60s) US Navy aircraft carried AIM-9B with black motor section or all black, most likely to indicate training missile.

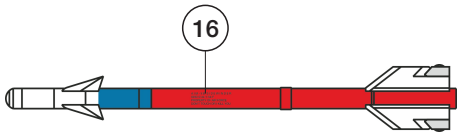
Swedes are keen to paint their Rb 24 green – undoubtedly to achieve a more military-like appearance.

AIM-9C

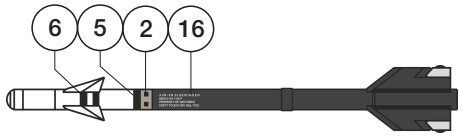
Before F-8 fleet got a chance to carry AIM-7, the limited all-weather capability was provided to Crusader by C variant of Sidewinder. It was essentially AIM-9B with IR seeker replaced by semi-active homing radar. While it was not hugely successful, we feel it is worth mentioning here, as it is very similar to AIM-9B. The differences are:
- no seeker window
- slightly larger canards.

Around 700 AIM-9C were converted to **AGM-122 Sidearm** — a lightweight anti-radiation missile, their small size making them suitable to be carried by AH-1 or AH-64.

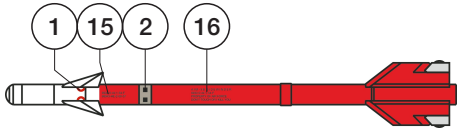
Colors and markings



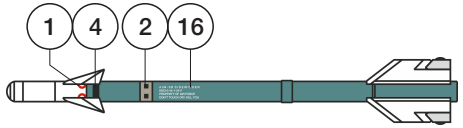
Training AIM-9B, USAF.



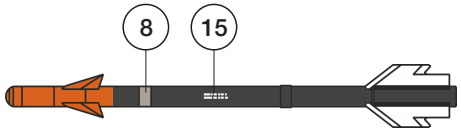
US Navy AIM-9B with black motor section.
Seek under F3H wings.
Overall black also available.



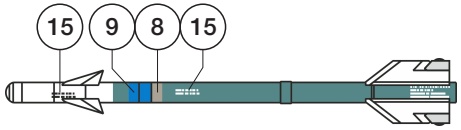
AIM-9B carried by Phillippine AF F-5A
Also seen in this form under USN F3H Demon.



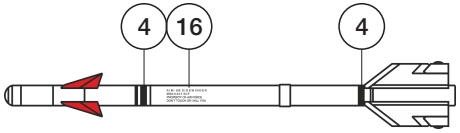
Live AGM-122 Sidearm



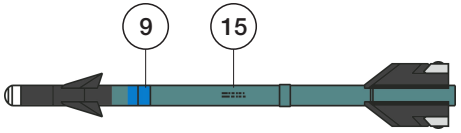
Orange/red tip, black motor. Rollerons removed.
That's how you do AIM-9 in Australia.



Inert AGM-122 Sidearm



Overall white, red canards.
Down Under again.



Inert AGM-122 Sidearm

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Shelf Oddity

Back to the USSR

In 1958 AIM-9B fired from Taiwanese fighter failed to explode on impact, and was found buried in rice field mud. Via China, it reached USSR, where it was analysed. You can imagine the impression it made, as a directive was immediately issued commanding stop on all work on K-6 and K-7 missiles and redirecting all workforce onto copying the AIM-9.
According to engineers dealing with this task at that time, Yakutian bone-carver masters had to be fetched to sculpt out plastic mould that protected delicate vacuum-tube guidance electronics. It went as far as keeping imperial measure units, although it received slightly bigger warhead.
Resulting missile was named R-3s (**изделе** 310, 310A).

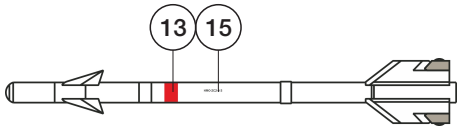
MiG-21F-13 was the first aircraft to be armed with this missile. It remained in wide use in USSR Air Force until 1980s.
First combat use of R-3S in Vietnam and then in Middle East proved what was already well known on the other side of Berlin Wall: reliability and simplicity but also limitations. AIM-9Bs/R-3Ss could only be used in good/clear weather conditions against relatively unmanoeuvering targets, max launch acceleration was disappointing 2g, and seeker field-of-view very narrow. It was easily decoyed by flares or sun.

R-3S seen under wings of MiGs are usually white, with red or black bands indicating live missile. IR-guided missiles will usually take inboard position, leaving outboard launcher for radar-guided munitions. Training / inert missile would have appropriate letter stencilling.

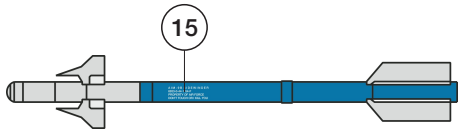
The AAM-3 (Type-90)

Japanese industry does not lack capabilities nor experience in aviation industry. Remember A6M Zero fighter? Back to more recent time – license production of F-15J, heavy modification of F-16 that resulted in F-2 fighter, and the upcoming (?) X-2 Shinshin are just the tip of Fuji mountain.
In mid 80s Japan Technical Research Development Institute started development of a short-range air-to-air missile, based on the AIM-9L but with many upgrades. Two colour IR-seeker was included to provide better distinction between IR-countermeasures and an aircraft. Unusual design of the missile´s canards provides excellent stability and manoeuvrability.

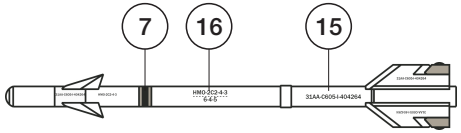
Colors and markings



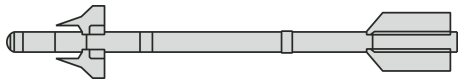
Standard apperance of R-3S.



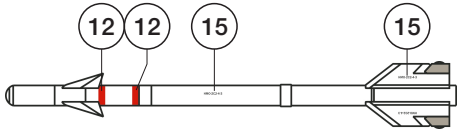
AAM-3



Another typical R-3S.

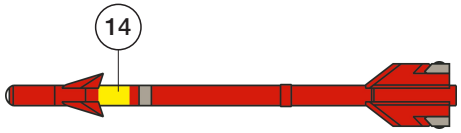


AAM-3



Two bands undoubtedly indicate this R-3S is more dangerous.

AAM-3



R-3S in commie red.
Should it be green it would clearly indicate military origins.

AAM-3 test missile.
Good luck painting this one.

...colors continued
More colorful paint schemes are employed during various trials – when good visibility of tested article is a key and there is a need to ascertain missile attitude. US Navy conducted development tests of its missiles in Naval Ordnance Test Station (NOTS) China Lake and Pacific Missile Test Centre (PMTC) Point Mugu. When you spot an AIM-9 that resembles a parrot, it most probably comes from those places.

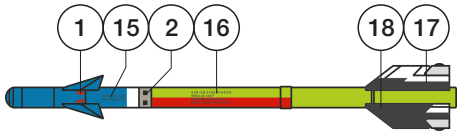
Belgian training missiles have their canards removed, sport bright orange or yellow fuselage and wings while leaving the tip light grey.

The AIM-9 marking palette presented here may seem quite comprehensive, but you can be 100% sure it is not complete. New photos pop up all the time and there are multiple variations of guidance sections and motor sections possible. While it is you who do the painting, we hope the decals provided with this set will allow you to finish most of desired AIM-9 color schemes.

Sources
For such broad subject, pointing one source is rather difficult and possibly misleading. But if you only had one shot, I would definietly advise you to visit Jon Bybee's excellent The Combat Workshop site. You will find the full story of Sidewinder missile broken down into 4(?) chapters and heavily illustrated.

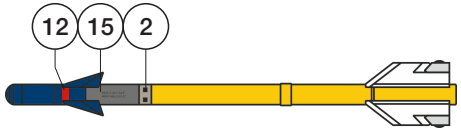
Note
Missile bodies are produced using CNC lathe. Lathe blade has a certain, finite edge radius. Working toward tip of the missile, where radius of body decreases, we arrive at a point when the blade is unable to reach the very tip of round-nosed missile. This leaves a tiny mark.
We guess it is not a big deal for an advanced modeller to sand this scar smooth with few swipes of 1000-grit sandpaper. Worse things happen on daily basis on our workbenches. In return for this slight inconvenience we are able to machine a recessed exhaust nozzle, which we believe will be more appreciated.

Colors and markings

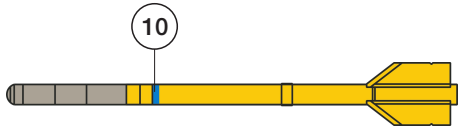


Test article @PMTC Point Mugu


This training one is from Belgium...



Not quite sure if this is the test article, or are the museums keen to paint their display AIM-9B's this way.



...and this one is from Belgium too. Looking rather good at the tip of F-16A wing.

Another test article @PMTC Point Mugu