



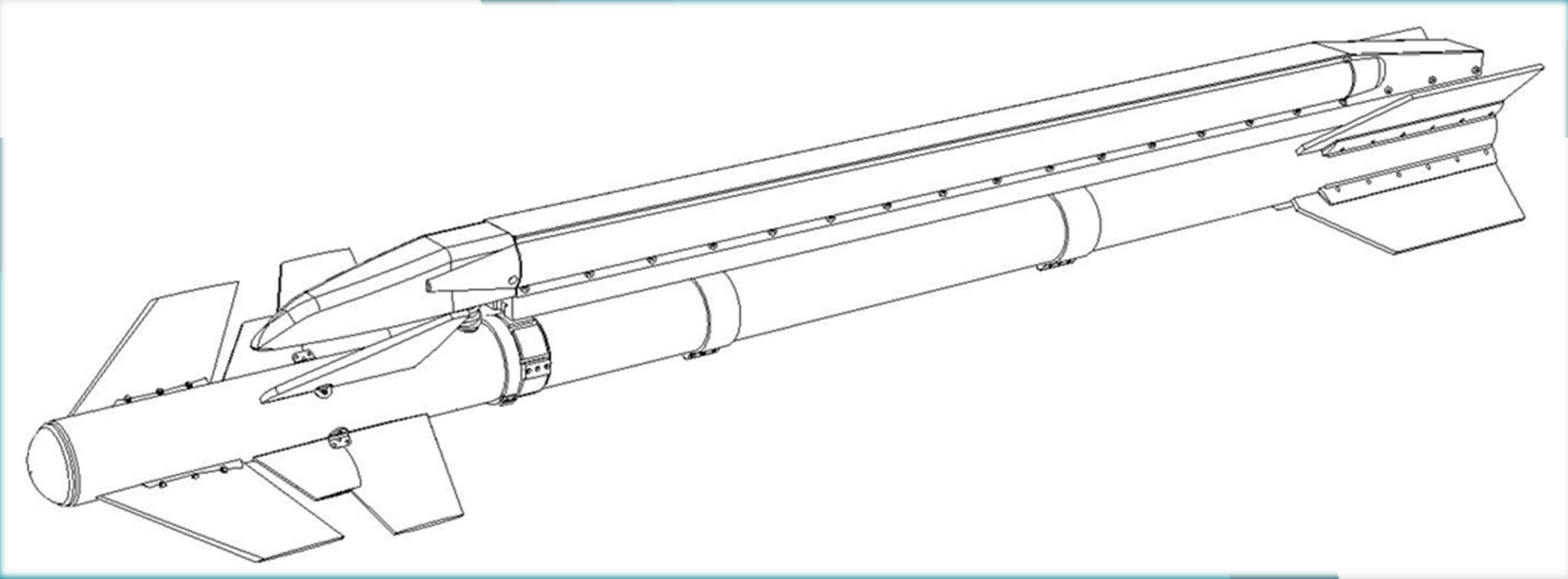
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Information Pack:

Kentron V3B Kukri

Infrared Ai-to-Air Missiles and Launchers





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Kentron V3B Kukri

Infrared Air-to-Air Missile and Launch Rail

Users:

South African Air Force

Aircraft Types:

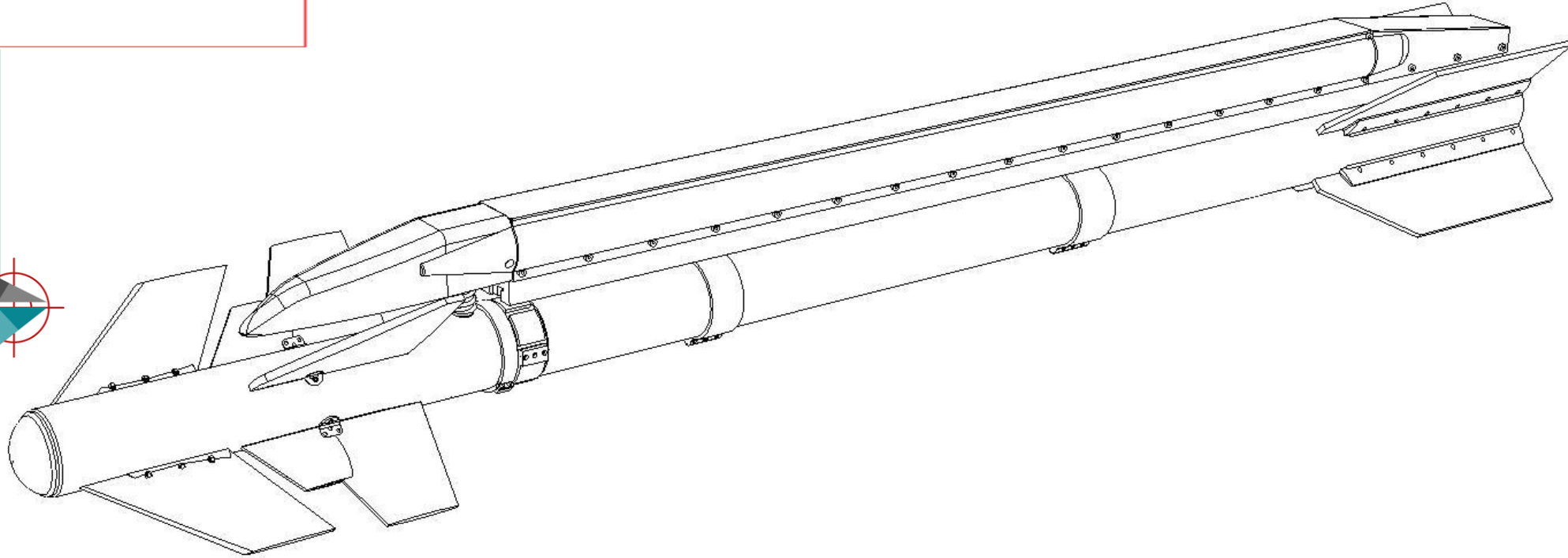
Dassault Mirage IIICZ/EZ/RZ

Dassault Mirage FIAZ/CZ

Atlas Cheetah B/D/E

Atlas MB326K Impala Mk2

Denel Rooivalk





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Kentron V3B Kukri Tech and Gen

The Kentron V3B was developed out of necessity as a locally designed short-range Infrared Air-to-Air Missile. After trials of the V3A were less successful than anticipated, Kentron began updating the V3A into the V3B in 1975. The V3B offered a more sensitive IR-head with a larger 'search angle' an upgraded motor and an increased helmet-sight designation angle. Development was completed by 1979 and the missile was put into production, with 450 units said to have been manufactured between 1979 and 1985.

The V3B Kukri was cleared for use with the SAAF's Mirage IIIICZ, EZ, RZ, Mirage FIAZ, FICZ, Atlas Impala Mk2 and Atlas Cheetah B, D and E and trialled on the Denel Rooivalk for technology and capability demonstrations. The major technological advantage of the V3B Kukri was the helmet-mounted targeting and acquisition system which allowed the pilot to lock the missile's seeker head onto a target well outside his aircraft's axis by moving his head to face the target regardless of where the aircraft was pointed.

While the V3B Kukri was a proudly homegrown product for the SAAF, it's performance was unfortunately not on par to what was expected by Pilots and the SAAF itself in trying to counter the Cuban and Angolan MiG-21 Fishbed and MiG-23 Flogger Fighters that were in theatre. The V3B Kukri's IR seeker head was sensitive to decoy flares and hot spots on the ground and tended to track exhaust plumes and afterburner flames of the aircraft they were tracking, instead of the aircraft emitting them, as a few SAAF Pilots found out during engagements.

The V3B Kukri was fired at several Cuban and Angolan flown MiG Fighters but scored no kills as it is believed that these Kukri's were fired from outside their performance envelopes and simply ran out of kinetic energy before reaching their targets. It is believed that at least one of the V3B Kukri's possibly damaged a MiG fighter during an engagement.



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Atlas Cheetah E armed with an inert V3B Kukri with live Seeker Head for training purposes. The white markings on the aircraft were placed on the aircraft for identification during a Blue vs Red forces training scenario. V3B Training rounds were painted in grey while the Operational rounds were painted in a khaki/beige colour.



Two Dassault Mirage F1AZ's of 1 Squadron SAAF performing a training sortie. The rear F1 is seen carrying a typical post-war load. The V3B Kukri was carried operationally by Mirage F1AZ's during the Border War with engagements against MiG-23's being noted.



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More V3B Kukri armed Atlas Cheetah's. D model on the left and E model on the right. Note the grey and beige colours of the launch rail and missile as well as the placement of the red bands around the missile body indicating live missiles. Also interesting to note is the toned down national marking and stencilling on the Cheetah E on the right.



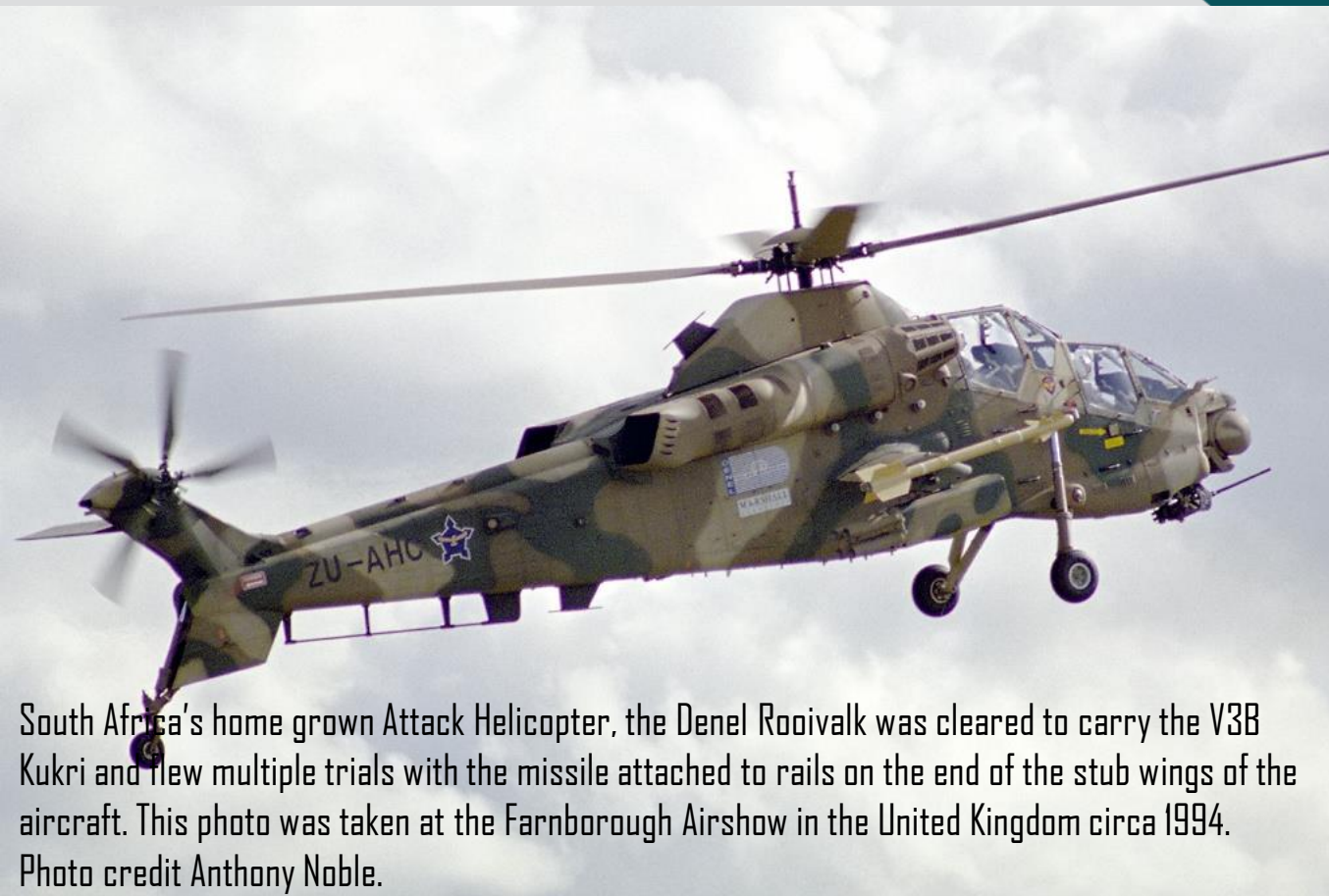
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South Africa's home grown Attack Helicopter, the Denel Rooivalk was cleared to carry the V3B Kukri and flew multiple trials with the missile attached to rails on the end of the stub wings of the aircraft. This photo was taken at the Farnborough Airshow in the United Kingdom circa 1994. Photo credit Anthony Noble.



A toned down Dassault Mirage III RZ during Operation Protea in 1981 at Ondangwa. The RZ's were known for their armed low level reconnaissance missions. These missions were regarded as highly dangerous on account of the enemy being in possession of advanced anti-aircraft missiles.



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Blurry but interesting shot of a Low-viz Mirage IIICZ with V3B Kukri's and RP825 Supersonic Centreline Fuel Tank taken at a weapons camp in Durban in 1990. Note the Compact Radar Warning System (CRWS) antennae on the nose and towards the top of the vertical stabilizer



A Dassault Mirage IIICZ, easily distinguishable by the small fillet at the base of the vertical stabilizer (tail) and the intakes meeting the rear bottom corner of the canopy. This IIICZ is carrying V3B Kukri Inert missiles. It is important to note that the V3B Kukri was only cleared to be carried on the outer wing pylons on Mirage III and Cheetah variants.





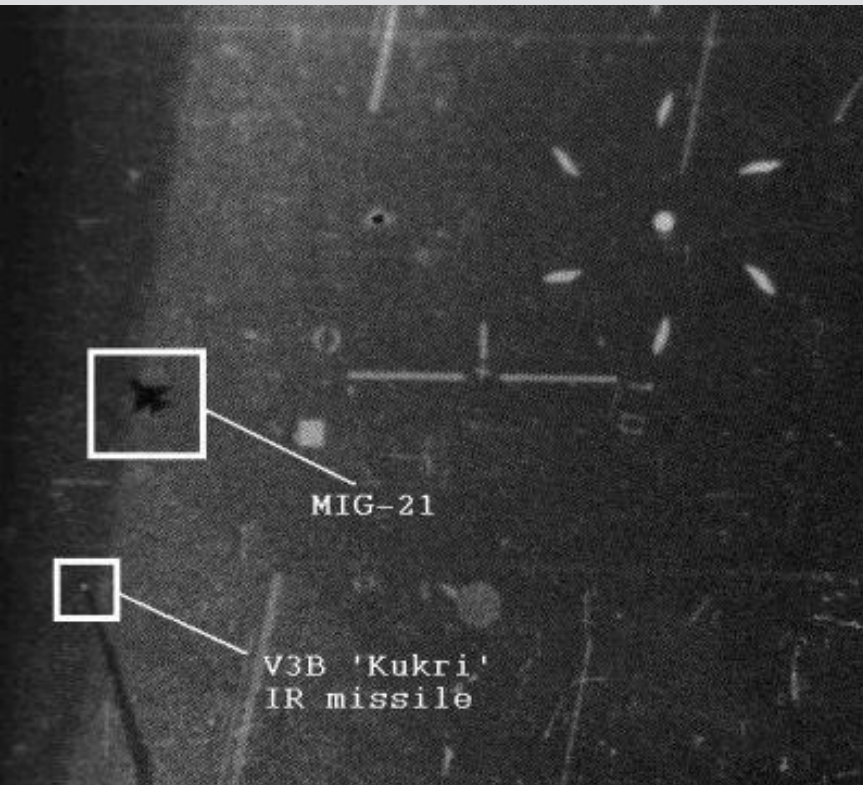
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Right: A rare photograph of a SAAF Dassault Mirage F1CZ in Spectre Grey scheme carrying V3B Kukri's. It is thought that the V3B's were carried by the CZ's for clearance trials as it is not readily known for Mirage F1CZ's to have carried the V3B Kukri into combat, nor is there much photographic evidence of that ever happening.



Left: A gunsight image from all accounts to be what seems like a Mirage F1 filming its missile shot at a MiG-21. It is disputed that SAAF V3B Kukri carrying Mirage F1's engaged Cuban or Angolan MiG-21's during the Border War. It is believed this Mirage Pilot turned away before seeing a registered hit on the MiG-21.



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Altas Impala Mk2 carrying two V3B Kukri's during a training sortie off the coast of South Africa. V3B Kukri's were carried by Impala Mk2's on Operational armed reconnaissance sorties during the Border War from Ondangwa in June 1988 and onwards. It is important to note that V3B Kukri's were only carried on the outer pylons on Impala Mk2's.

Close-up shot of an Operational V3B Kukri Seeker Head. Note the Beige/Khaki colour of the missiles, denoting the live and Operational variant.





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Building Instructions and Colour Callouts

Colour Callouts:

A – Launch Rail

Humbrol – 126

Tamiya – XF-20

Mr. Color – C306

Vallejo – 70,870

B – V3B Kukri Missile

Humbrol – 80% 71 + 20% 126

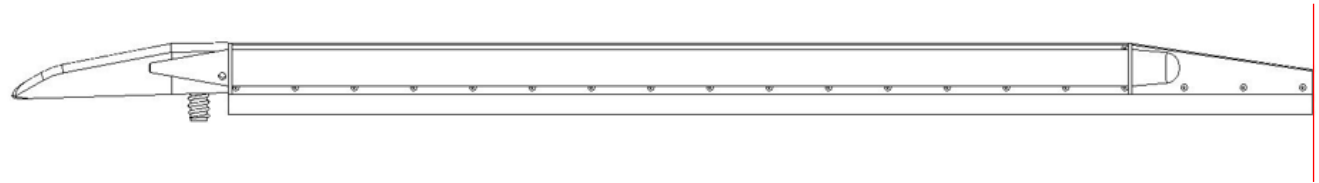
Tamiya –

Mr. Color – 80% C45 + 20% C306

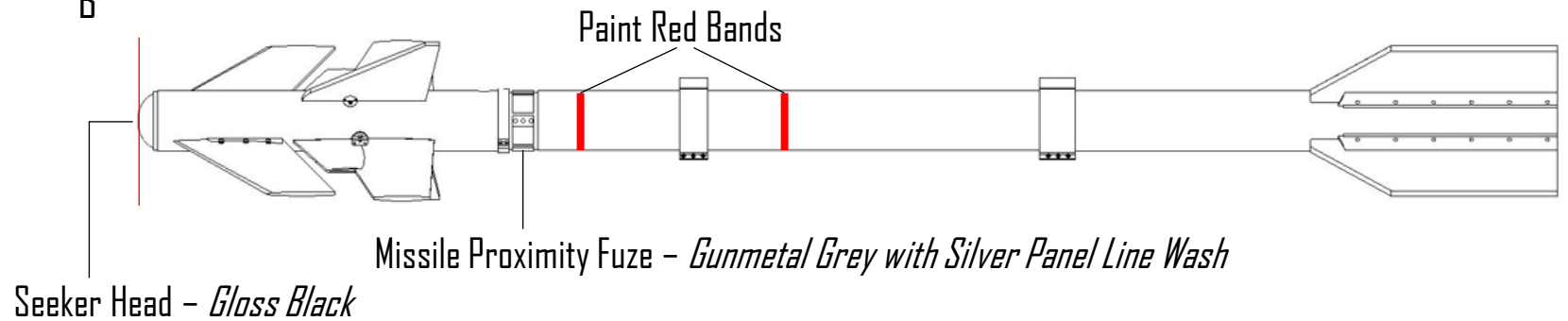
Vallejo – 80% 70.976 + 20% 70,870

*It is recommended to use a primer prior to painting the parts

A



B



Remove the print supports beyond the red lines



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Building Instructions and Colour Callouts

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B - V3B Kukri Missile

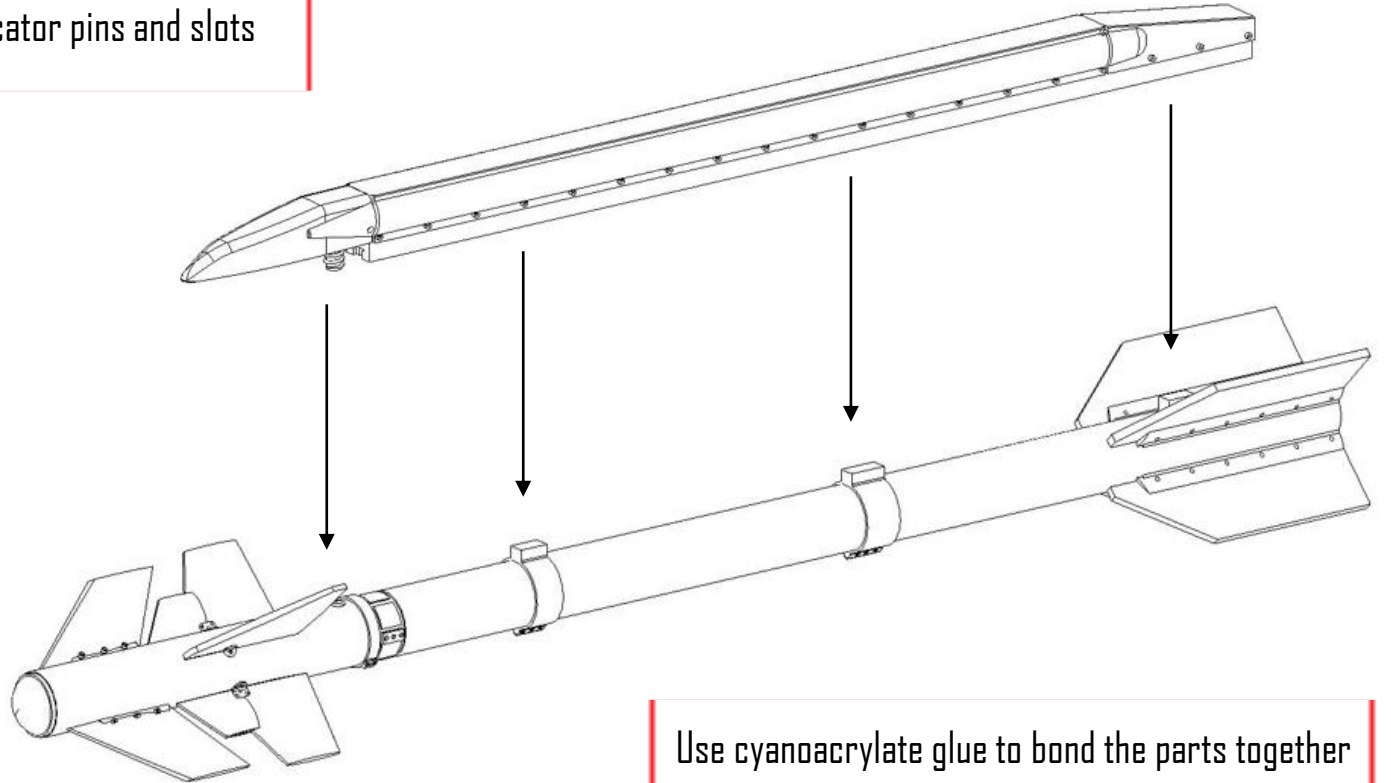
Humbrol - 80% 71 + 20% 126

Tamiya -

Mr. Color - 80% C45 + 20% C306

Vallejo - 80% 70.976 + 20% 70,870

*Arrows indicate locator pins and slots



Use cyanoacrylate glue to bond the parts together



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ArtMan Delta Disclosures

WARNING

This is not a toy.

These items are not suitable for children .

Modelling experience is required.

Always wear eye protection when cutting the resin off any supports.

Do not breathe the resin dust in as it may be harmful to your health.

It is recommended to wear breathing protection such as a face mask when handling and cutting/ grinding/ sanding resin.

Not for human consumption, keep away from children.

Acknowledgements

Every effort has been made to reproduce these scale model accessories to as accurate proportions as possible from measured full scale aircraft parts and resulting technical drawings. All work is original. We would like to thank ArtMan Delta's good friend, Malcolm Reid for his incredible insight, knowledge and information shared with ArtMan Delta to make these parts into what they are. ArtMan Delta would also like to thank any unreferenced photographers for their incredible photographs that have assisted in giving the level of detail ArtMan Delta wishes to share with the world for the benefit of historical remembrance and accurate facts but most importantly the joys of modelling. Should any of the photographers recognise photographs in these instruction sheets, please contact ArtMan Delta in order for us to give credit where credit is due. Lastly, thank you, to you, our customer for purchasing an ArtMan Delta set, without your support none of this would be possible.