



Russian SA-10B „GRUMBLE“ at SYTGT043 (Bassel Al-Assad Int. Airport)

General

The S-300 (NATO reporting name SA-10 “GRUMBLE”) is a family of surface to air missile systems developed in the Soviet Union, designed to defend against aircraft, cruise missiles and has been upgraded for ballistic missile defence throughout its lifetime.

The many variants of this system can be roughly separated:

The S-300P (SA-10 “GRUMBLE” / SA-20 “GARGOYLE”) was designed to the specifications of dedicated air defence forces.

The S-300W (SA-12 / SA-23 “GLADIATOR” / “GIANT”) was designed for use with air defence units attached to ground forces and thus had a higher need for mobility.

The S-300F (SA-N-6 “FORT”) is the naval variant, as seen on Slava-class cruisers.

This INTREP will focus on the S-300PS (SA-10B “GRUMBLE”).

Components

An SA-10 consist of multiple vehicles with different purposes:

1x 5N66M Search Radar (NATO reporting name “CLAM SHELL”)

1x 64H6E Search Radar (NATO reporting name “BIG BIRD”)

1x 30N6 Track Radar (NATO reporting name “FLAP LID”)

1x 54K6 C2 Vehicle

6-8x 5P85D / 5P85C TELs

Various support vehicles like transport trucks or power generators

(See INTREP VID-B-001, page 51)

Armaments and target acquisition:

The 5P85C and 5P85D TELs can carry up to four missiles, either 5V55 or 48N6E, the 5V55 being the missile of choice. The missile is 7m long with a diameter of 50.8cm and weighs 1480kg at launch with a 100kg HE Warhead.

Its maximum speed is Mach 6.25, with a maximum turning load of 27G

It is guided by the FLAP LID TR via Radio Command Guidance and TVM, with SARH for terminal guidance.

Each TEL can launch a missile every 3s, and the TR is able to engage multiple targets simultaneously.

Employment ranges:

The SA-10B has a stated maximum range of 66nm (~120km) , an optimal range of ~40nm and a service ceiling of almost 100.000ft. Its dual SRs enable it to be effective at close to 0ft target altitude. The missiles extremely high speed makes it very dangerous at close ranges. The powerful TR also enables the system to detect, track and engage missiles down to the size of the AGM-88.

Susceptibility to countermeasures

Since it is purely radar-guided, the SA-10B is susceptible to chaff and ECM, although it shows a high resistance to both.

Countertactics

Due to the abilities outlined above, the SA-10B can be very challenging to defeat. Low flight is not effective on its own, unlike with older SAM systems like SA-2 GUIDELINE or SA-5 GAMMON. Apart from the usual tactics of notching/chaffing and kinematically defeating the missile, VIS recommends breaking LOS with the TR as the primary defence against the SA-10B.



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5V55 missile



5P85C TEL



54K6 C2-post

30N6 "FLAP LID" TR



5N66M "CLAM SHELL" SR



64H6E "BIG BIRD" SR



See <https://cloud.132virtualwing.org/s/TBQ8eqQYzPzxFQ7> for identification kneeboards



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Situation at Bassel Al-Assad Airport

Timeline:

First reports of SA-10 presence at the airport on D0 (D0.1-134)

First images on D4 (D4.1-11)

First hostile act on D9 (D9.2-12)

First hit on coalition aircraft on D10 (D10.2-53), 2x F-16C destroyed

Current VIS recommendation:

As per targeting meeting D9 and D10 VIS recommends avoiding Bassel Al-Assad Airport by min. 40nm for safe passage.

Comments:

The SA-10B, while not as mobile as the SA-12/23, is still able to reposition within hours. Intel throughout D0-D10 have shown no movement of the radar installations. With the current heightened tension with Russia as of D10, this might change in the future.



Recommended 40nm avoidance zone



Imagery from D4



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Site Composition and coordinates

1x 30N6 “FLAP LID” TR @ N35 24.385 E035 57.330 105ft, last seen D10 , coordinates from D10.2-53

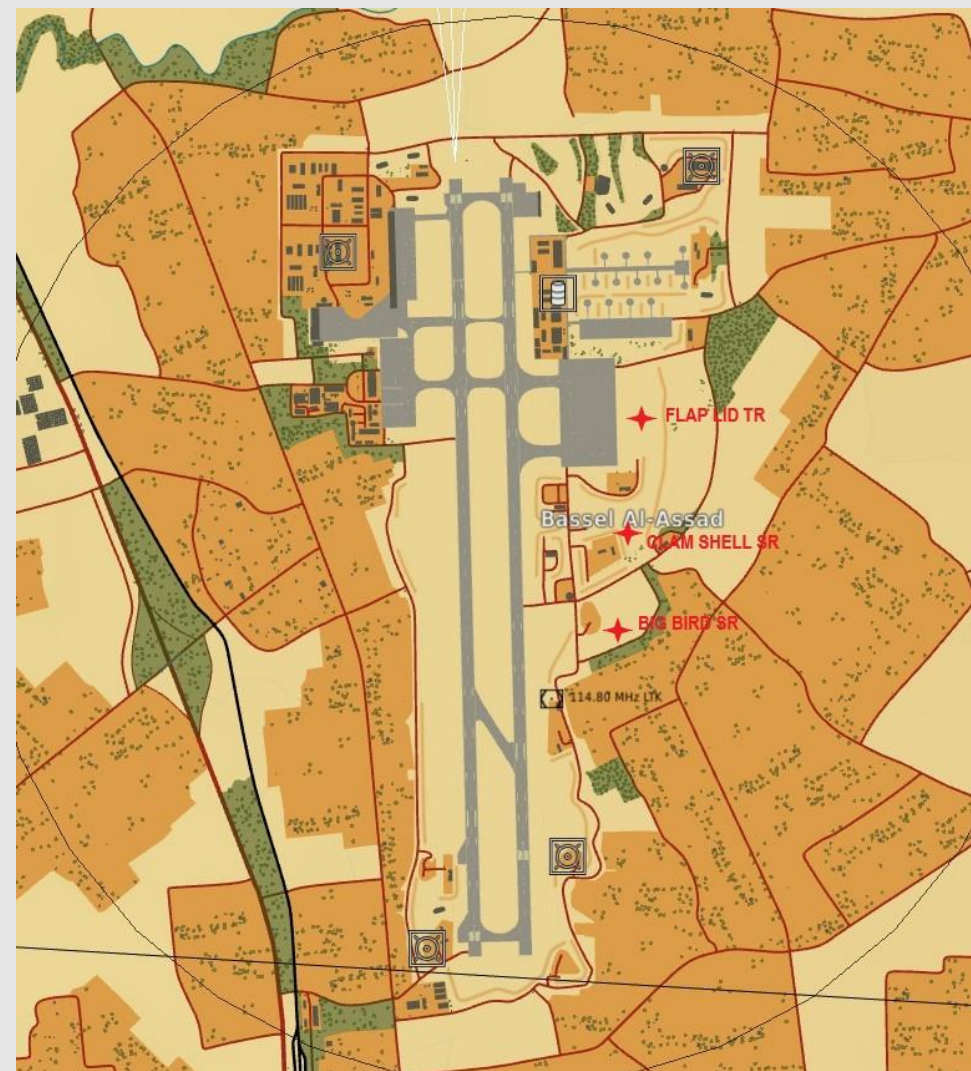
1x 5N66M “CLAM SHELL” SR @ N35 24.177 E035 57.304 107ft, last seen D10 , coordinates from D10.2-53

1x 64H6E “BIG BIRD” SR @ N35 23.990 E035 57.270 110ft, last seen D10, coordinates from D0.1-136

Precise location of launchers unknown. Report D0.1-136 suggest 6x 5P85D / 5P85C TELs IVO the BIG BIRD SR at the above position. INTREP VID-B-001 suggests 8 launchers as part of an SA-10 BN.



Imagery from D10



Plotted positions of radars