



HOMING HEADS

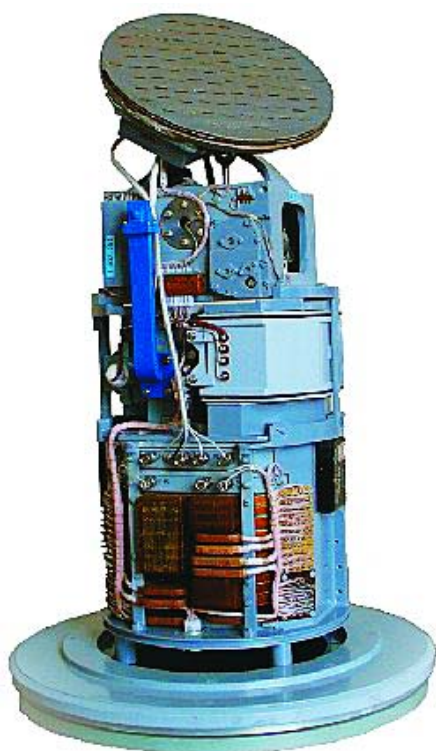


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AGAT: NEW GENERATION OF ACTIVE RADAR HOMING HEADS

During the recent years, aircraft, cruise and tactical ballistic missiles built around the stealth technology have extensively been employed as air attack assets. At the same time, use is widely made of various massive intensive interference noises affecting air defense weapons. The results of air attack assets employment in modern local conflicts convincingly show that the effective fight is possible only on

Upgraded 9B-1103M active radar homing head (diameter 200 mm)



the condition of a considerable increase in performance characteristics of air defense missile systems and missile systems of interceptor fighters. This compels the developers of air defense missiles to continuously upgrade their products without lowering their effectiveness in new conditions.

Taking into account the experience of combat employment of air attack assets, specialists of the Moscow Agat Research Institute develop new generations of radar homing heads for air-to-air and surface-to-air missiles.

In the 1990s, the institute developed an active radar homing head, the 9B-1103M upgraded version, with minimum dimensions and weight, which outperforms the preceding generations of active radar homing heads. It mounts a miniature digital processor featuring a large storage memory and rapid action capability; fiber optic gyroscopes are installed instead of the mechanical ones. This minimizes the time of position line generation and missile launch readiness.

The institute pays much attention to the unification of items being

Upgraded 9B-1103M active radar homing head (diameter 350 mm)



developed, including the units incorporated in various radar homing heads. This principle has manifested itself to the full extent during the development of the upgraded 9B-1103M active radar homing head. A high degree of unification allows its use in air defense and air-to-air missiles ranging from 200 to 400mm in caliber.

The development of new small-size

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radar homing heads ensuring precise guidance of missiles became possible due to the introduction of the up-to-date technologies, computerized workstations and unique measuring and modeling stands.

During the recent years, our highly qualified specialists and scientists made miniature SHF transmitters and receivers, high-performance onboard digital computers and digital signal processors. Considerable progress has been achieved in the development of antenna equipment, including flat waveguide slot monopulse antenna arrays and pointed radiotransparent radomes possessing high characteristics.

At present, Agat develops a

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new-generation active radar homing head for air-to-air and surface-to-air missiles. This homing head will be able to detect, lock on and automatically track air targets at ranges 2 to 2.5 times exceeding the existing active radar homing heads (without increasing power consumption from the missile) and to send required signals and commands

to the control system. The guidance system effectiveness is retained in clutter and jamming environments. A missile fitted with this active radar homing head can engage various targets: aircraft, helicopters (including the hovering ones), cruise, tactical ballistic, antiradar and antiship missiles. This active radar homing head features an increased transmitter power as well as new types of radar signals and methods of their processing.

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The active radar homing head under development weighs 35 kg, and its antenna mirror diameter is 280 mm. It will be able to lock on fighters at a range of up to 70 km.

Apart from the active radar homing head proper, Agat develops a set of nonstandard instrumentation, as well as measuring and modeling stands that will facilitate its series production and operation in armed units.

It is supposed that the mockup of the new-generation active radar homing head will be demonstrated at the MAKS 2003 *International Aerospace Show* in the town of Zhukovsky. □



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