



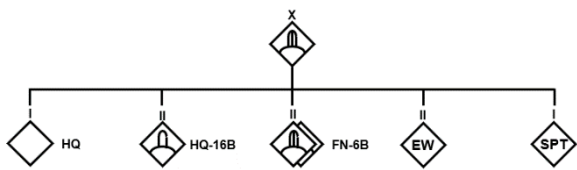
(U) CHINA: CA-BDE AIR DEFENSE OPERATIONS

(U) This infographic describes People's Liberation Army Army (PLAA) combined arms brigade (CA-BDE) ground-based air defense operations. The PLA, as a joint force, fields a very dense and well-equipped ground-based air defense capability, including long-range PLA Air Force (PLAAF) surface-to-air (SAM) systems participating in an integrated air defense system (IADS), along with a PLAA medium- and short-range systems tasked with defending low-level tactical airspace. The PLA's investment in its air defense capabilities is reflective of their emphasis on **area denial** coupled with the belief that **denying the enemy freedom of action in the air domain** is a critical enabler of virtually all other tactical operations.

(U) The PLAA employs its tactical air defense capabilities using a **combined-arms approach** wherein limitations or shortcomings of one system are offset by capabilities of another system. The PLAA places a unique emphasis on both **gun-based** and **gun-missile hybrid** short range air defense (SHORAD) systems. **Mass** of air defense systems is also an important consideration: a high density of systems creates large areas of denial and deters enemy aircraft systems from entering tactical airspace while increasing lethality past what single or isolated systems might provide.

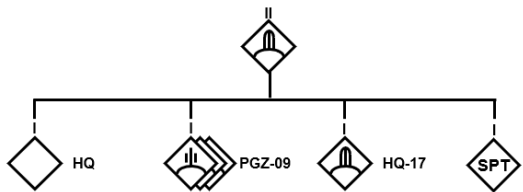
(U) PLAA tactical systems are supported by upper-tier systems primarily operated by the PLAAF. These systems include both long-range SAM systems and fixed-wing aircraft, operating in cooperation with one another to deny wide areas of airspace and deter or defeat enemy air threats. It is not known how the PLA delegates engagements between PLAA and PLAAF air defense elements, but it is likely that upper-tier engagements are conducted **centrally** via a joint air defense commander, while lower-tier engagements are **decentralized**, delegated to individual units and controlled procedurally through **rules of engagement**, **airspace control measures**, and **visual or electronic identification**. Lower-tier headquarters enjoy digital data connections to the IADS network, giving them improved situational awareness.

(U) PLAA Air Defense Brigade



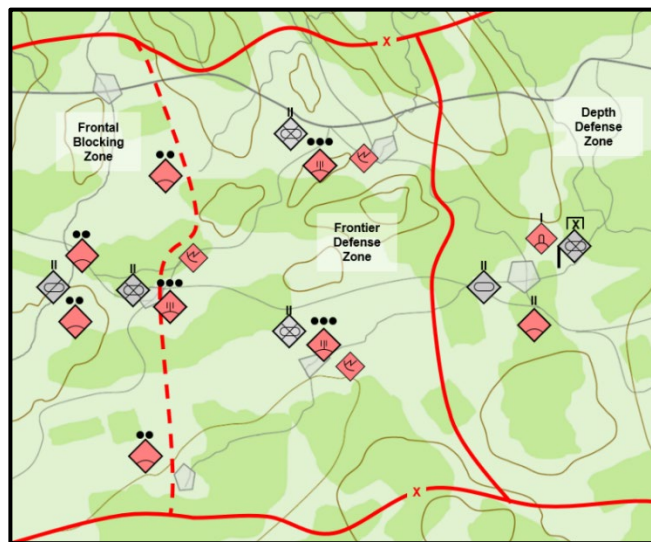
(U) The core of the group army's air defense brigade is its battalion of HQ-16/16A/16B medium range SAMs. This system was derived from the Russian Buk (SA-11) and can defeat aircraft and cruise missiles through 360 degrees out to ranges past 70km. The SHORAD battalions consist of a mix of truck-mounted infrared (IR) short-range missiles and man-portable air defense system (MANPADS), and are likely employed as reinforcements to subordinate combined arms brigades or in general support. The electronic warfare (EW) battalion consists of a variety of air domain-focused EW systems that target enemy sensors and communication with a special emphasis on denying enemy unmanned aircraft systems (UAS) freedom of action.

(U) PLAA Air Defense Battalion (Heavy Combined Arms Brigade)



(U) The air defense battalion within the CA-BDE focuses on deterring or defeating low-altitude air threats in order to ensure the CA-BDE commander enjoys freedom of action. Three batteries of self-propelled anti-aircraft guns (SPAAGs) – most of which employ coaxial MANPADS to complement the guns – are typically tasked with close escort of maneuver formations. Newer PLAA SPAAG systems employ high-velocity, large caliber guns firing sophisticated proximity-fused ammunition to improve lethality. The SHORAD battery – an HQ-17 missile system derived from the Russian Tor – defends high-value assets from both enemy aircraft and standoff munitions. Dismounted MANPADS organic to the CA-BDEs maneuver battalions augment the AD BN's firepower.

(U) PLAA Air Defense Battalion Operations



(U) A medium CA-BDE's air defense battalion deploys to defend its parent unit. Dismounted MANPADS deploy to the frontal blocking zone to defend forward reconnaissance units, enabled by the SMART HUNTER air defense C2 system. Platoons of PGZ-09 35mm hybrid SPAAG/missile systems deploy along with maneuver battalions to provide close-in protection. The HQ-17 battery deploys near the BDE CP and supply areas to defeat both air and munition threats to these critical assets. Three JS-QF612 SMART HUNTER radar systems are deployed through the defensive area to provide low-altitude air detection. All units receive digital data from the battalion HQ including both SMART HUNTER target data and IADS data from the higher-tier air defense networks. Deployments are similar for both offensive and defensive operations.

(U) PLAA Air Defense Battalion Systems



(U) JS-QF612 "Smart Hunter" Radar

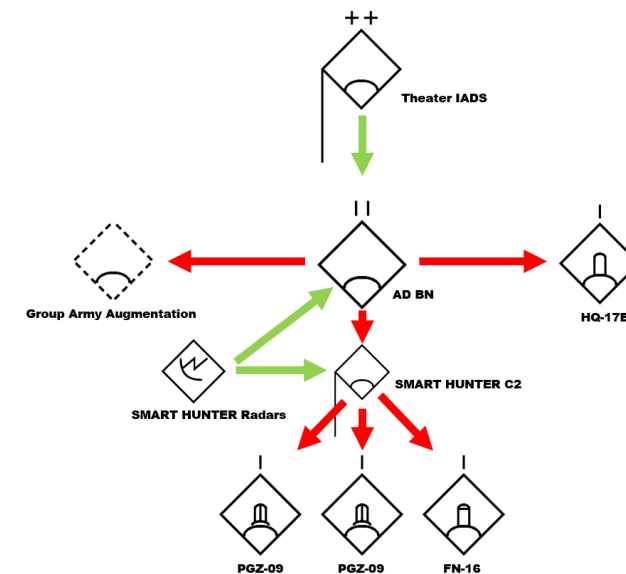


(U) PGZ-09 Hybrid SPAAG/SHORAD



(U) HQ-17A (wheeled) short-range SAM

(U) PLAA Air Defense Battalion Kill Chain



(U) The AD BN's air picture data (**green arrows**) is drawn from both the theater IADS and its organic SMART HUNTER radars. Cueing data and engagement commands (**red arrows**) are distributed to subordinate units via digital data links. The HQ-17B battery and any additional SHORAD missile units are controlled directly by the battalion HQ. The SMART HUNTER C2 system controls subordinate gun/missile and MANPADS batteries, sending a local air picture, a theater air picture, and cueing data to shooters via digital data links. SMART HUNTER can provide specific cueing data to both mounted systems (PGZ-09) and MANPADS units from throughout the brigade.