

ROK Artillery— Present and Future

by Major John Gordon IV

It may come as a surprise that of all America's allies, the nation that maintains the largest amount of artillery is not a NATO nation, but the Republic of Korea, commonly referred to as South Korea. In this article, I examine the organization of the Republic of Korea Army (ROKA) artillery and its weapons and tactics. In addition, I review the future trends of the ROKA artillery toward reorganizing its force and modernizing its equipment. To put the ROKA situation into the proper perspective, I first briefly examine the Threat it faces.

North Korean Threat

The Democratic People's Republic of Korea, usually referred to as North Korea, maintains the third largest standing army in Asia, with an active-duty strength of about 750,000 men. Only the armies of the People's Republic of China and Vietnam are larger. The North Korean Army consists of 25 active-duty infantry divisions and 35 armored and mechanized brigades, some of which are subordinated to infantry corps while others are formed into four armored or mechanized corps, each of which is larger than an American armored division.

Supporting these ground forces is a huge artillery organization. The total artillery weapons available to the North Korean Army's divisional and non-divisional artillery units number

roughly 4,000 guns and howitzers and about 2,500 multiple rocket launchers (MRLs). Many of these weapons are now produced in North Korea.

The North's army is by any standard large and is a huge drain on a nation of only 22 million people. It's organized and deployed for a short-notice offensive against South Korea, and its artillery would be a major factor in such an offensive, particularly in the initial phases of any attack. North Korean forces are large, but much of its equipment, particularly its tanks and certainly its air force, is obsolescent. When faced with the prospect of breaking through well-organized ROKA defensive positions along the 150-mile Demilitarized Zone (DMZ), the North would have to rely primarily on its massive artillery organization.

HARTS

Just north of the DMZ are hundreds of hardened artillery sites (HARTS) that have been constructed since the end of open hostilities in August 1953. During the first phase of an attack against the South, the North Korean artillery would be able to find shelter in these sites, some of which are bunkers and others tunnels in hillsides. For the first 10 to 15 kilometers of an advance against the South, the vast majority of the North Korean artillery would be able to fire from these well-protected positions.

If the attack were successful and the advance continued, the North's artillery would have to leave its protected positions to follow and support the advancing armored and infantry units. However, the advantage the HARTS provide in the early phases of an attack can't be overstated. These positions, as I discuss later, represent a major challenge to the ROKA artillery.

Artillery Upgrades

The North has spent the past few years transforming much of its artillery from 1940s to 1950s-style Soviet towed weapons into a self-propelled force. It has accomplished this by mounting 122-mm, 130-mm and 152-mm weapons on armored personnel and tractor chassis, usually with limited crew protection and traverse capabilities. Nevertheless, these conversions have greatly increased the North Korean artillery's ability to follow and support advancing maneuver units. In addition, the North has deployed a number of long-range, self-propelled 180-mm guns, which would certainly be used very early in any war to terror-shell Seoul for propaganda purposes. (There is disagreement about the caliber of guns; some sources say they're 170 or 175-mm.)

North Korea is a major threat to the Republic of Korea. The North's army is large, apparently well-trained and armed with a large number of service-

Artillery Organization

The basic unit in the ROK Army is the infantry division. By current US Army standards, these would be light infantry divisions since they are, for the most part, foot-mobile and contain very few armored vehicles. At full strength, these divisions number roughly 15,000 officers and men. The majority of their firepower comes from their organic artillery regiments.

Figure 1 shows the typical artillery organization in a ROKA infantry division. All battalions consist of three firing batteries and a total of 18 cannons. As currently organized, three battalions have towed 105-mm howitzers, either US- or ROK-made M101s or ROK-produced KH-178s 105-mm howitzers, which are superior to the US M101s.

These direct-support battalions are habitually associated with one of the three infantry regiments of the infantry division. The fourth battalion is the divisional general-support battalion, which is armed with either American-made M114 or Korean-produced KH-179 155-mm howitzers. The total number of weapons in the Korean artillery regiment is 72, which compares favorably with its North Korean counterpart. A North Korean division usually has four, 18-gun battalions.

Division Artillery. The artillery organization of the two ROKA mechanized infantry divisions is shown in Figure 2. The Capital and 20th Mechanized Divisions are elite forces in the ROK Army and are much more heavily armed than are the regular infantry divisions. It's here that the modern, South Korean-produced K-88 tanks are found.

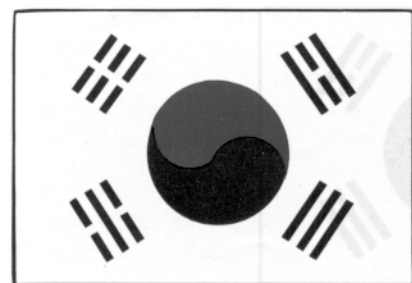
The artillery regiment consists entirely of self-propelled weapons. The 8-inch howitzers are short-tube M110 weapons, which were dropped from US active-force service roughly a decade ago. But the M109A2s have the same capabilities as the M109-series howitzers found in American mechanized and armored units. The M109A2 is also the direct-support weapon in the artillery battalions of the ROKA non-divisional armored brigades.

Corps Artillery Brigades. In addition to its divisional artillery force, the ROKA maintains a large number of separate artillery organizations. The ROKA has several artillery brigades assigned to the corps that are posi-

tioned along the DMZ. The number of artillery brigades in each corps varies, depending on the part of the DMZ the corps is defending. Unlike the divisional artillery regiments that are fixed in structure, there's considerable variation in the organization of the corps artillery brigades.

Figure 3 shows a typical organization of a corps artillery brigade. Note the number of battalions will vary considerably, as will the type of weapon.

A number of artillery systems at the corps level don't show up in the divisional organizations. These include American-made M107 175-mm self-propelled, long-range guns and M115 8-inch towed howitzers. Each corps artillery brigade also has a two-launcher Honest John rocket battery and a battalion of Korean-made 130-mm *Kooryong* MRLs. Unlike the North Korean Army, the ROKA doesn't usually assign MRLs to divisions.



able but increasingly outmoded weapons. The artillery arm of its army is formidable, with the ability to generate the massive firepower needed to crack ROKA defensive positions along the DMZ.

ROK Army

In June 1950 when the North Korean Army swept across the 38th Parallel, the ROK artillery was very poorly armed and trained. Its heaviest weapons were a few hundred US World War II-vintage 105-mm towed howitzers. This force wasn't prepared to deal with the well-equipped forces of the North. For many years after the Korean War, the ROKA's dependence on US Army hand-me-downs was to continue. Today that situation is rapidly changing.

The ROK Army currently consists of approximately 540,000 men on active duty organized into two mechanized divisions, 19 infantry divisions and a number of non-divisional infantry, armor and artillery brigades. Backing up this force, which is larger than that of any of our NATO allies, is a reserve structure that includes 23 reserve infantry divisions of various types and several million reservists. A prominent part of this army is its powerful artillery force.



This ROKA 105-mm howitzer in a concrete bunker is aimed at the DMZ. Notice the thickness of the overhead cover.



A ROKA M110 howitzer moves through a typical Korean town.



The ROKA M109A2 howitzers of the elite Capital Mechanized Division line up after Team Spirit 89.

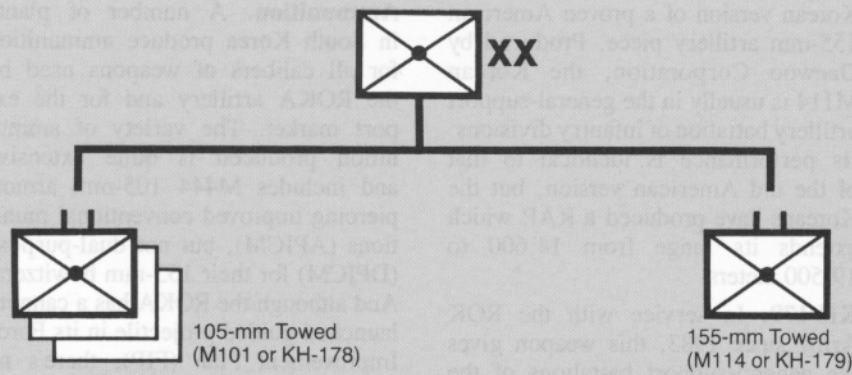


Figure 1: The Typical Organization of a ROKA Infantry Division Artillery

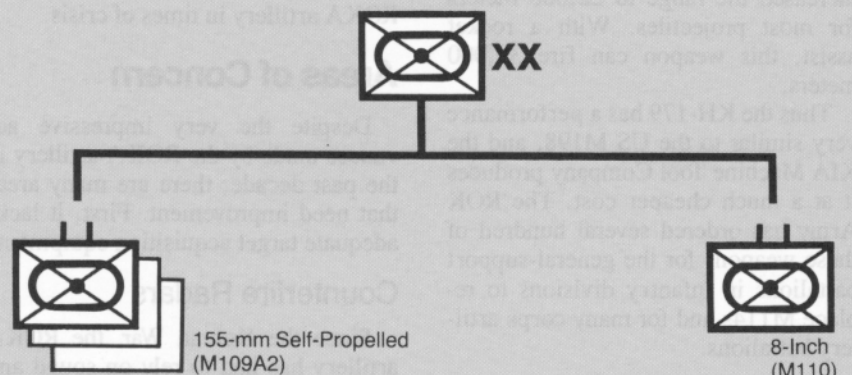


Figure 2: The Organization of the Two Elite ROKA Mechanized Infantry Divisions Artilleries—The Capital and 20th Divisions

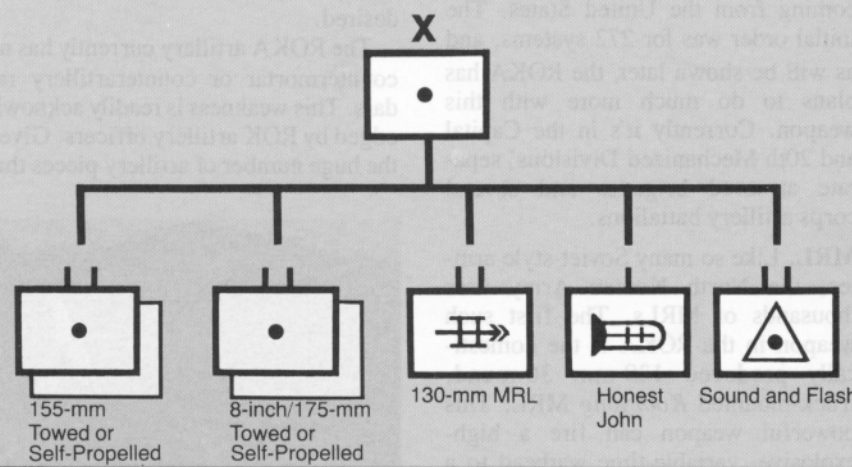


Figure 3: The Organization of a ROKA Corps Field Artillery Brigade, Though the Number of Battalions Varies

	ROKA	United Kingdom	France	West Germany
Number of Guns/Howitzers	3,300(+)	550	786	1,223

Figure 4: Comparison of Selected NATO Armies and ROKA Field Artillery

Reserve Artillery. As mentioned earlier, the active-duty elements of the ROKA are supported by a very large reserve system that can field 23 reserve divisions in a matter of a few days after mobilization. There're two types of reserve divisions: mobilization reserve divisions (MRDs) and homeland defense divisions (HDDs). These vary in function and organization.

The MRDs are organized in a similar manner to the standard active-duty infantry divisions, and their artillery includes the usual mix of 105-mm and 155-mm weapons found in the active army. These formations are able to take their place in the front line beside active-duty forces several days after mobilization.

The HDDs, however, are designed primarily for rear-area defense. This is no small task considering the massive North Korean Special Purpose Forces dedicated to infiltrating the ROKA rear area throughout the depth of the ROK.

The HDDs are weak in artillery. Some divisions have only one battalion of artillery, 105-mm. This organization is in keeping with the mission of these divisions.

Figure 4 shows a comparison of the total artillery strength of the ROKA, including the reserves, compared to that of selected NATO armies. The artillery of the ROK Army is very formidable, even though outnumbered by its potential North Korean enemies.

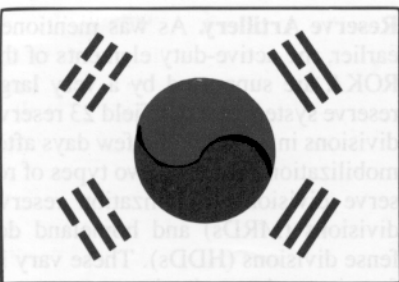
Artillery Doctrine

Due to its long, close association with the United States Army, it isn't surprising that ROKA artillery doctrine is very similar to ours. In fact, the ROKA artillery Field Manual 6-20, is virtually a copy of the American *FM 6-20 Fire Support*. There are, however, several differences between how the US artillery and ROKA would fight.

In terms of artillery missions, there's no difference between the two armies. Direct support, reinforcing, general-support reinforcing and general support are concepts both armies share. This greatly facilitates coordination among US and ROK artillery commanders.

Some of the important differences at the tactical and operational levels are—

- The ROKA tends to move artillery battalions in one bound.
- The role of the corps artillery staff is similar to that of a US corps artillery during World War II. Because front-



has a range of 18,000 meters.

M114A2. Like the M101, this is a Korean version of a proven American 155-mm artillery piece. Produced by Daewoo Corporation, the Korean M114 is usually in the general-support artillery battalion of infantry divisions. Its performance is identical to that of the old American version, but the Koreans have produced a RAP, which extends its range from 14,600 to 19,500 meters.

KH-179. In service with the ROK Army since 1983, this weapon gives the general-support battalions of the ROK artillery a much greater range than they had before. Using the carriage of the M114A1, the Koreans mounted a new 39-caliber barrel that increased the range to 22,000 meters for most projectiles. With a rocket assist, this weapon can fire 30,000 meters.

Thus the KH-179 has a performance very similar to the US M198, and the KIA Machine Tool Company produces it at a much cheaper cost. The ROK Army has ordered several hundred of these weapons for the general-support battalions in infantry divisions to replace M114s and for many corps artillery battalions.

M-109A2. The first self-propelled artillery piece produced in the ROK, this weapon is built under license by Samsung Shipbuilding and Heavy Industries with certain components coming from the United States. The initial order was for 272 systems, and as will be shown later, the ROKA has plans to do much more with this weapon. Currently it's in the Capital and 20th Mechanized Divisions' separate armored brigades and several corps artillery battalions.

MRL. Like so many Soviet-style armies, the North Korean Army uses thousands of MRLs. The first such weapon in the ROKA is the domestically produced 130-mm 36-round, truck-mounted *Kooryong* MRL. This powerful weapon can fire a high-explosive, variable-time warhead to a range of 32 kilometers. Reloading takes about 10 minutes. Currently, these weapons are in 18-launcher MRL battalions at the corps level. It's produced by Daewoo Heavy Industries.

Computerized Firing Data. At the battalion and battery levels, the artillery now uses a computer to determine firing data. Currently, these are issued

one to each firing battery and one at the battalion fire direction center.

Ammunition. A number of plants in South Korea produce ammunition for all calibers of weapons used by the ROKA artillery and for the export market. The variety of ammunition produced is quite extensive and includes M444 105-mm armor-piercing improved conventional munitions (APICM), but not dual-purpose (DPICM) for their 155-mm howitzers. And although the ROKA has a cannon-launched guided projectile in its Force Improvement Plan (FIP), there's no such round produced in the ROK at this time. Commonality of ammunition with US Army units stationed in the ROK would, of course, facilitate transfer of munitions from US Army to ROKA artillery in times of crisis.

Areas of Concern

Despite the very impressive advances made by the ROKA artillery in the past decade, there are many areas that need improvement. First, it lacks adequate target acquisition equipment.

Counterfire Radars

Since the Korean War, the ROKA artillery has had to rely on sound and flash to locate enemy artillery and mortars. Given the hilly nature of the terrain, which provides ample reverse-slope firing positions for both sides, these methods leave much to be desired.

The ROKA artillery currently has no countermortar or counterartillery radars. This weakness is readily acknowledged by ROK artillery officers. Given the huge number of artillery pieces that



ROKA soldiers receive instructions for the Korean-produced KH-179 towed howitzer during a training exercise.

ages are much smaller for divisions in Korea than they would be for us in Europe, the ROKA corps artillery headquarters can effectively retain tactical control of a considerable amount of artillery. Some front-line ROKA corps have frontages about the same as a US Army division would have in Europe. This means the corps artillery headquarters can control the counterfire battle and retain control of a significant number of firing battalions.

- The ROKA artillery retains the forward observer concept, as opposed to a US fire support team.
- The ROKA artillery doesn't emphasize deep battle, as does the US artillery. It pays a great deal of attention to the close-support mission.

Artillery Equipment

The days are rapidly passing when the ROKA has to rely on US hand-outs for its artillery. South Korea is now capable of producing a variety of artillery systems for its own forces and for export.

M101. For some years now, the ROK has produced this split-trail 105-mm towed weapon. It's still the most common artillery piece in the ROK Army. Produced by Daewoo Corporation, it's identical to the M101 howitzer made for the US Army for many years. The ROKA recognizes that this weapon is rapidly becoming outmoded and is taking steps to change the situation.

KH-178. A much more modern 105-mm weapon is this howitzer, designed and produced in Korea. The KIA Machine Tool Company took samples of the excellent British 105-mm light gun and the experimental West German Rheinmetall version of the M101 and incorporated the better points of each into its KH-178.

This towed weapon, in production since 1984, can fire current 105-mm ammunition to 14,700 meters, nearly a 30 percent increase in range over the M101 howitzer. If it fires a rocket-assisted projectile (RAP), the KH-178



This ROKA fire direction computer is used at the battery and battalion levels.

the North Koreans would employ in an offensive against the South, the rapid detection and destruction of the enemy's artillery is a *must* for the ROKA. The lack of counterfire radars is the most serious weakness in the ROKA artillery.

Enemy HARTS

As was mentioned earlier, the presence north of the DMZ of literally hundreds of HARTS presents a very serious threat to ROKA artillery and maneuver units. This threat is magnified by the ROKA's mission of stopping an attack as close to the DMZ as possible, which by definition means ROKA forces will be exposed to intense artillery fire from heavily fortified enemy positions.

There is constant discussion among the US and ROK fire support communities as to how to effectively deal with this threat. A solution probably will be a combination of hardware and doctrine. But at least for the present, the burden of combating the HARTS will fall on the already outnumbered ROKA artillery, much of which also has its own hardened positions. This could prove to be a substantial drain on ROKA artillery resources that also will be heavily tasked to provide close support for maneuver forces. The result almost certainly would be an epic artillery duel, the likes of which has not been seen since World War I.

Munitions

While the ROKA artillery is supported by a growing defense industry that can provide the vast majority of its needs, it still needs more advanced munitions. As compared to 1950, the North Korean Army is a much more

mobile armored force. Despite the fact that most of its forces are infantry, it can field more than 5,000 tanks and armored personnel carriers. As was mentioned earlier, much of the North's artillery is now mounted on self-propelled chassis, which are at least partly armored. The ROKA artillery's lack of significant anti-armor munitions is an area that should be addressed.

As mentioned earlier, the ROKA FIP specifies a requirement for a cannon-launched projectile that can engage armored targets. The support requirements and cost of such a system are, however, formidable.

A more feasible solution would be for the ROKA to add a large reserve of DPICM and anti-armor family of scatterable mines (FASCAM) that the artillery could employ with very little additional training. Ammunition production facilities in South Korea are certainly capable of producing such munitions.

Future Trends

Some of ROKA's plans to improve its artillery focus on organization, others on equipment.

Heavy Division

As mentioned earlier, the ROK Army is predominantly a light infantry force with the 105-mm howitzer its primary direct-support artillery weapon. There's a possibility that this will change in the next decade.

Recently, the ROK Army converted one of its 19 light infantry divisions

into an experimental heavy infantry division. The implications of this change for the artillery of the ROK Army are profound. In place of the 54 105-mm howitzers currently found in the light infantry division, this new formation has three battalions of 54 M109A2 self-propelled 155-mm howitzers. The divisional general-support battalions are armed with 18 KH-179 155-mm howitzers, which have a longer range than the M109.

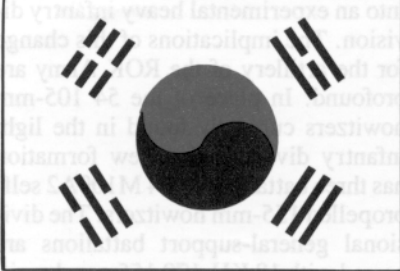
Strengthen Reserves

Should the ROK Army decide the heavy infantry division is a better, more affordable successor to the current light infantry division, the artillery will require many hundreds of additional M109s over a period of years to convert to the new organization. An additional 17 division's worth of M109s means the ROKA would have to buy more than 900 more self-propelled weapons. The South Korean defense industry can produce that quantity, should the Army decide it wants the weapons. Such a decision would also have great implications for the reserve infantry divisions in the ROK Army.

As M109s would replace the existing M101s and KH-178s in the direct-support battalions of active-duty ROKA infantry divisions, those older weapons would be passed down to the MRDs and HDDs in the reserves. To a limited extent, this process has already been taking place as KH-179s replace the older M114 howitzers in the general-support battalions of divisions and corps artillery. Such a transition would strengthen the reserve divisions



A ROKA 105-mm howitzer, produced by Daewoo Corporation, is identical to the US M101.



that make up a considerable portion of the ROK Army's combat power.

Artillery-Locating Radars

Of almost equal importance is the need to buy modern target acquisition equipment. After several years of indecision, the ROK Artillery seems ready to make its move.

In terms of the number of howitzers it fields, the US 2d Infantry Division is a negligible addition to the artillery of the ROK Army. What the US 2d Infantry Division Artillery does have that the ROKA needs is artillery-locating radars.

For several years, the US Army has tried to interest the ROK artillery in the Firefinder Q36 and Q37 radars, but several in-country tests didn't satisfy the ROK Army. The most recent testing was conducted in late 1988 with US-trained ROKA crews manning the systems.

It now appears the ROK Army has decided to buy a number of these radars. At some point in the near future,

the Q36 and or Q37 will begin to be fielded, probably in the corps target acquisition battalions.

The addition of those modern radars will greatly improve the efficiency of the ROK artillery and will remove its dependence on the US to provide such capabilities. The ROK artillery will then gain the ability to detect North Korean artillery, once it leaves the HARTS.

Guided Munitions

Farther in the future, there's the possibility of the ROKA artillery's buying guided munitions. The ROKA artillery needs a guided anti-armor artillery projectile in its FIP, but it hasn't decided on such a round.

The South Koreans occasionally have requested information on our Copperhead. But the expense of the round and the requirement for supporting systems such as the ground-vehicular laser locator designator (GVLLD) and its past reliability problems have kept ROK interest well short of a decision to buy. Possibly, the ROK artillery will wait several years to see if its domestic arms industry can develop such a munition.

Conclusion

The rise in the capabilities of the ROK domestic arms industry and a recent South Korean desire to shop around for non-American weapons will

noticeably change past practices of accepting ex-American weapons. In recent years, the South Korean Air Force and Navy have been showing much more interest in European systems, and it's possible the ROK Army will begin to broaden its market also.

The ROKA is considering significant organizational and equipment changes for its artillery. But with the vast majority of its artillery equipment US-produced or Korean-built weapons similar to American systems, it probably will take a number of years for this trend to affect the ROKA artillery.



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Redleg News

ITEMS OF GENERAL INTEREST

PERSCOM Update: Field Artillery Officer Branch

Promotions

Upcoming Selection Boards	
Captain	27 Feb-30 Mar
Colonel	3-27 Apr
Lieutenant Colonel	12 Jun-6 Jul
Major	5 Sep-19 Oct

Promotion Pin-on Points. The current promotion pin-on points for officers selected in the primary zone of consideration is shown below. The Defense Officer Personnel Management Act (DOPMA) "goal" is shown for comparison.

Grade	DOPMA Goal	Projection
Captain	4 yrs	4 yrs, 4 mos
Major	10 yrs +/- 12 mos	11 yrs, 10 mos
Lieutenant Colonel	16 yrs +/- 12 mos	17 yrs, 10 mos
Colonel	22 yrs +/- 12 mos	22 yrs, 8 mos

Officer Record Brief. Your record brief (ORB) is extremely important because it serves as your resume. The servicing military personnel office (MILPO) will receive and review your promotion ORB approximately one month before the convening date of the board. You should not wait until then to correct your ORB. Initiate corrections *well* in advance. You can get a copy of your ORB at the same time you request a microfiche.

Traditionally, the biggest problem on the ORB is correcting civilian education data. You can forward a short note and appropriate documentation (transcripts) to Branch to input