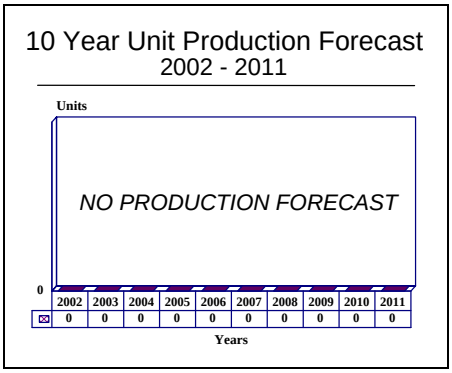
Kooryong 130 mm Multiple Launch Rocket System - Archived 3/2003

Outlook

- Production of this system has been completed for the domestic requirement
- Although still being promoted, no orders from the export market are forecast
- Other than for new rocket munitions, the Kooryong has no modernization or retrofit potential



Orientation

Description. A wheeled multiple launch rocket system.

Sponsor. The development of the Kooryong and procurement by the Republic of Korea have been sponsored by the Ministry of Defense of the Republic of Korea through the Korean Army.

Contractors. This multiple launch rocket system was developed and has been manufactured by Daewoo Heavy Industries Limited. Asia Motors Company, Hanwha Corporation, and Samsung Company are the principal subcontractors.

Licensees. None

Status. The serial production of the Kooryong for the domestic requirement has been completed and the system is in service with the Republic of Korea. The marketing effort continues.

Total Produced. As of January 1, 2002, a total of 158 Kooryong systems had been manufactured.

Application. A mobile rocket-based fire support system for the destruction of a variety of targets by means of multiple barrages.

Price Range. In equivalent 2002 United States dollars, the unit price of a fully loaded 36-round Kooryong system is $545,000.

Technical Data

Crew. Three

Training & Elevation Mechanism. Electrohydraulic with manual backup.

Vehicle. The Kooryong is mounted on a KM809A1 6x6 truck; other applications (including tracked vehicles) are possible.

Dimensions. The following dimensions are for the latest production-standard Kooryong multiple launch rocket systems mounted on the KM809A1 truck.

	SI units	US units
Launcher vehicle		
Launch tubes:	36	36
Length:	7.72 meters	25.32 feet
Width:	2.47 meters	8.10 feet
Height:	2.85 meters	9.35 feet
Combat weight:	17.01 tonnes	18.75 tons

Rocket. The following data are for the K33 improved rocket.

	SI units	US units
Length:	2.55 meters	8.37 feet
Diameter:	130 millimeters	5.12 inches
Weight:	64.0 kilograms	140.8 pounds

Performance. Some of the following data related to the launcher are provisional.

	SI units	US units
Launcher elevation:	+55°	+55°
Launcher depression:	0°	0°
Launcher traverse:	90° left/90° right	90° left/90° right
Minimum rocket range:	12,000 meters	13,123.2 yards
Maximum rocket range:	36,000 meters	39,369.6 yards
Speed:	1,200 meters per second	3,936.9 feet per second
Rate of fire:	Two rockets per second	Two rockets per second

Propulsion. The K30 and K33 rockets are produced by the Kanwha Corporation. The K33 130 millimeter improved rocket uses an unspecified composite-type solid-propellant motor weighing 43 kilograms (94.6 pounds). For the standard K30 rocket, the propellant weight is 33.3 kilograms (73.26 pounds).

Warhead. The K30 rocket used on the Kooryong system is equipped with the K37 pre-fragmented high-explosive warhead which weighs 20.37 kilograms (44.81 pounds). Of this total weight, 6.5 kilograms (14.3 pounds) is Composition B high explosive. The Kooryong K33 rocket is equipped with the K38 high-explosive warhead containing 16,000 steel balls which weigh 20.37 kilograms (44.81 pounds). Of this total weight, 2.8 kilograms (6.16 pounds) is Composition B high explosive.

Launcher Mode. The Kooryong uses a 36-round launcher on a KM809A1 6x6 truck; the launcher has four layers of nine tubes. The launch tube has a groove that imparts a spin to the rocket as it travels down the tube; the spin provides for a measure of aerodynamic stabilization. Firing is accomplished electrically.

Control & Guidance. Four wrap-around fins pop out after the rocket exits the launch tube; these fins, plus the spin imparted by the launch tube, provide aerodynamic stabilization. Shorter ranges are achieved using one or two drag rings which are attached to the forward section of the warhead.

Fire Control. In the South Korean Army, fire control is rudimentary, with orders coming from a forward observer or central command vehicle. The launch vehicle is equipped with a radio or land line link to the fire control officer. Single-round, partial, or ripple firings can be made.

Variants/Upgrades

Variants. As of mid-2002, no variants of the Kooryong have been developed and none are expected.

Modernization and Retrofit Overview. This is not applicable at this time. Other than for improved rockets, the Kooryong system essentially has no modernization or retrofit potential.

Program Review

Background. While the Republic of Korea possessed some ex-US World War II-vintage multiple launch rocket systems during and following the Korean War, the country had never developed a system of this type on its own. Indeed, following the retirement of the ex-United States equipment, there was no desire to field a more modern system of this type for many years. Even though the United States had gone ahead and developed the enormously successful M270 227 millimeter multiple launch rocket system and turned it into an even more successful international program, the Republic of Korea did not (at least initially) opt for this sophisticated system. As part of its continuing effort to reduce its dependence on the United States and other nations for military hardware, and because the Korean Army had less demanding requirements for a multiple launch rocket system, the nation decided to develop an indigenous system.

Development. Very little is known regarding the development of the Kooryong. The development started in 1979, with the first production examples delivered in 1986. The first "improved" rockets were delivered in 1989. In South Korean Army service, the Kooryong is deployed at the corps and divisional levels for fire support missions. While the Kooryong has a type designator in the Korean Army, it is unknown as of this writing.

Description. The Kooryong is a 36-round launcher mounted on a KM809A1 truck, the United States M809 truck that is manufactured under license by Asia Motors. However, the Kooryong has been developed so that it can be fitted to almost any wheeled or tracked vehicle with a 5-ton load capacity. Electrically driven hydraulic motors drive the launcher in elevation and traverse; similar motors also operate the stabilizing jacks which are lowered before the system is operated. The system is resupplied by a KM813A1 truck which carries 72 reload rockets; the reloading takes approximately 10 minutes. The fire control system allows for single-round shots as well as partial or full ripple fires. The fire control box can be operated from the driver's station or up to several meters from the vehicle.

Operational Analysis. While the Kooryong is a much less sophisticated multiple launch rocket system than the popular M270 227 millimeter multiple launch rocket system, it is more than able to meet the requirements of the Republic of Korea's armed services. Even more important, it is much less costly to procure and maintain. What this system really needs is some sort of submunition-dispensing warhead for the rocket, even if it dispenses only baseline submunitions such as the M42. This would greatly enhance the usefulness of the system.

Funding

Funding for the development and procurement of the Kooryong has been provided by the Ministry of Defense of the Republic of Korea.

Recent Contracts

Not available, as contractual information is not released.

Timetable

The following timetable should be considered provisional.

Month	Year	Major Development
	1979	Development begun
Late	1986	First production deliveries made
	1989	Improved rockets first delivered
	2001	Serial production for the domestic requirement completed
Mid	2002	Serial production dormant as marketing effort continues

Worldwide Distribution

Export Potential. The Republic of Korea is a new and unknown player in the world's weapons market. It will take some time for this country's indigenously designed weapons to be evaluated by the market. Therefore, any export of the Kooryong for the foreseeable future is unlikely.

Country. **Republic of Korea** (158)

Forecast Rationale

The production of the Kooryong system for the Republic of Korea was completed in 2000; no additional domestic orders are forecast. The 158 systems have now been complemented by the new and much more sophisticated multinational M270 system, which is now in South Korean service.

The Kooryong is a rather cost-effective multiple launch rocket system that has been driven from the limelight by the M270 system. However, its low unit price and the continued marketing effort could result in a sale on the export market sometime in the next few years.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

			High Confidence Level				Good Confidence Level			Speculative			
Ordnance	**(Engine)**	**though 01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**Total 02-11**
DAEWOO HEAVY INDUSTRIES LIMITED													
KOORYONG MULTIPLE ROCKET (a)	NHC-250	158	0	0	0	0	0	0	0	0	0	0	0
Total Production		158	0	0	0	0	0	0	0	0	0	0	0

(a) All production shown is for service deliveries only.