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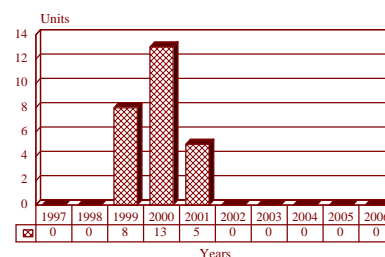
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KH 178 105 mm Howitzer - Archived 5/98

Outlook

- The production of this piece is presently dormant but is forecast to resume for an attrition buy
- No export sales are forecast
- There is essentially no modernization or retrofit potential for the KH 178

10 Year Unit Production Forecast
1997-2006



Orientation

Description. A towed 105 millimeter artillery system

Sponsor. The development and procurement of the KH 178 has been sponsored by the Ministry of National Defense of the Republic of Korea through the Korean Army.

Contractors. The KH 178 was developed and is manufactured by KIA Machine Tool Company; Seoul, Republic of Korea.

Licensees. None

Status. The KH 178 serial production program is dormant but the piece is available for further orders; the KH 178 is in service with the Republic of Korea Army.

The KH 178 is being promoted on the international market, especially in Asia and Latin America.

Total Produced. As of January 1, 1997, a total of 504 KH 178 pieces had been manufactured.

Application. A light, close support artillery system primarily for infantry on the move at the company level. This weapon also has a direct fire capability.

Price Range. In equivalent 1992 United States dollars, the unit price of the KH 178 was \$177,200; this figure is essentially the same today.

Technical Data

Crew. Seven

Muzzle Brake. Double baffle

Recoil System. Hydropneumatic

Breech Mechanism. Horizontal sliding block

Carriage Type. Split trail

Shield. Optional

Ammunition. High Explosive-M1, M3, M413, M444; High Explosive Anti-Tank M622; all other United States/NATO pattern ammunition of this caliber can be fired without a barrel change.

Dimensions. The following data are for the latest production standard.

	<u>SI units</u>	<u>US units</u>
Caliber	105 millimeters	4.13 inches
Length overall	7.56 meters	24.8 feet
Width	2.15 meters	7.05 feet
Height	1.58 meters	5.18 feet
Barrel length	34 calibers/3.57 meters	34 calibers/11.71 feet
Traveling weight	2.65 tonnes	2.92 tons
Firing weight	2.65 tonnes	2.92 tons

Performance. The range figure is with an assisted projectile. This artillery piece is usually towed by a 2.5 ton class truck at a maximum road speed of 56 kilometers per hour (34.8 miles per hour).

Elevation	+65°	+65°
Depression	-5°	-5°
Traverse	22.75°left/22.75°right	22.75°left/22.75°right
Maximum range	18,000 meters	19,684.8 yards
Maximum rate of fire	15 rounds per minute	15 rounds per minute
Sustained rate of fire	5 rounds per minute	5 rounds per minute

The barrel life is stated by the contractor to be 7,500 equivalent full charges.

Variants/Upgrades

None at this time.

Program Review

Background. In the early eighties, the Republic of Korea embarked upon several indigenous armament programs in an effort to reduce the country's dependence on the United States of America. One of these programs was a new lightweight 105 millimeter howitzer. The Republic of Korea is one of the relatively few nations that believes artillery systems of this caliber are still valuable battlefield assets and that their worth is sufficient for a new development program.

KIA Machine Tool Company, a firm with long experience in the field, was chosen to develop the new artillery system. In the initial stages of design, one example each of the Rheinmetall conversion of the M101 and the Royal Ordnance L118 Light Gun were procured for technical evaluations. Several features of both these pieces were incorporated into the new design. By 1983, the three prototype/developmental pieces of the new gun were being tested by the contractor and the Korean Army. Following the production approval in early 1984, the new artillery piece, designated KH 178, was placed in serial production.

Description. The KH 178 is of conventional split trail design that appears somewhat more robust than the L118/1119/1127 Light Gun and LG1, the main market competition. In fact, at 2.65 tonnes (2.92 tons), the KH

178 is heavier than both the Light Gun (1.86 tonnes-2.05 tons) and the LG1 (1.39 tonnes-1.53 tons). In fact, the KH 178 is even heavier than the 2.26 tonne (2.49 ton) M101A1 and 1.5 tonne (1.65 ton) M102. However, the KH 178 is considered to be a highly portable weapon that has a range capability over all its current production rivals. Firing rocket-assisted ammunition, the range of the KH 178 is 18 kilometers (19,684.8 yards).

All standard United States/NATO pattern ammunition can be fired from the KH 178. The CN78 ordnance uses progressive twist rifling with 36 lands and grooves. The life of the tube is put at 7,500 rounds of equivalent full charges. The RM78 hydropneumatic recoil system is a constant recoil length type, and an efficient double baffle muzzle brake is fitted. Two hydropneumatic/spring equilibrators are connected between the cradle and top portion of the CG78 carriage to center the elevating mass and to keep the elevating handwheel loads within acceptable limits. A large elevating arc is employed, as is screw-type traversing. The horizontal sliding block breech assembly incorporates a percussion type firing mechanism.

Operational Analysis. The Republic of Korea is one of the few nations that has been bucking the worldwide

trend toward standardizing almost completely on 155 millimeter artillery. The nation's vast combat experience plus the tactical situation in the Korean peninsula have convinced the Korean Army of the continued usefulness of 105 millimeter artillery. It is worthy of note that the United States Army had to learn this lesson the hard way, and after abandoning this caliber, found that it was really needed after all. It was then necessary to procure the Light Gun.

Despite the general warming of East-West relations, as well as the North-South relations on the Korean

peninsula, the Republic of Korea continues to feel threatened by its still bellicose neighbor to the north. This is a position similar to that faced by Israel, and additional analogies can be made. Both nations have to maintain a heavy military posture that represent considerable stresses on the economy. Both nations have relied heavily on the United States for military hardware, and in recent years both nations have developed indigenous weapons development and manufacturing capability in order to reduce their dependence on the United States.

Funding

The funding for the development and procurement of the KH 178 has been provided by the Republic of Korea Ministry of National Defense.

Recent Contracts

Not available as contractual information is not released.

Timetable

This timetable is for the KH 178 only and is in no way related to the KH 179, a modernization and retrofit program.

Early	1980s	Development of KH 178 began
	1982-1983	Prototype fabrication completed
	1983-1984	Prototype developmental/operational testing occurred
Feb	1984	Production approval given
	1984	Serial production began
Sep	1992	Serial production went dormant
Early	1997	KH 178 in service; available for new production orders

Worldwide Distribution

Export Potential. Even though slightly over 500 KH 178 howitzers have been manufactured, the weapon has yet to be sold on the export market. Even in mid-1997, it is still difficult to predict the impact of the KH 178 on the export market. However, it is easy to say that KIA Machine Tool Company is going to have a difficult time at best in marketing this weapon. A major factor is the glutted market conditions; thousands of fully serviceable M101 and M102 pieces are on the market. It should be noted that the market for artillery systems of this caliber is rather small, with most nations embracing 155 millimeter artillery. In addition, there is the continued very impressive showing of the Royal Ordnance Light Gun on the market, especially since the Light Gun is a combat-proven system that has been selected by the United States, two undeniably strong assets in the military market of today. Also, the Republic of Korea is a new and relatively unknown factor in the international arms market.

Countries. **Republic of Korea** (504)

Forecast Rationale

Our latest research on the KH 178 program finds that, although the production line for the KH 178 remains dormant, promotion of the piece continues on the international market.

The available evidence gathered in the course of our research indicates that the inventory requirement for the KH 178 was filled in the latter part of 1992. However,

based on the historically significant heavy reliance of the Korean Army on artillery of all calibers, plus the known inventory of M102 pieces, we continue to forecast a renewed procurement of the KH 178 for a few additional pieces in the outyears as attrition replacements. For the present and for the reasons noted above, we are forecasting no export sales of the KH 178.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Ordnance	(Engine)	through 96	<u>High Confidence</u>			<u>Good Confidence</u>			<u>Speculative</u>			Total 97-06	
			97	98	99	00	01	02	03	04	05		06
KIA MACHINE TOOL COMPANY													
KH 178(a)	NO ENGINE	504	0	0	8	13	5	0	0	0	0	0	26
Total Production		504	0	0	8	13	5	0	0	0	0	0	26

(a) The through 1996 production includes three developmental and operational test pieces.