

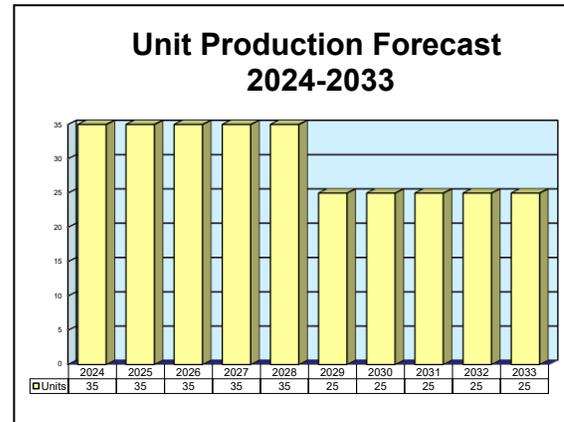
ARCHIVED REPORT

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Al-Khalid

Outlook

- In serial production for Pakistan Army procurement
- Al-Khalid will remain one of the most prolific new tank production programs
- Forecast reflects ongoing serial production for domestic Pakistani procurement and possible export



Orientation

Description. A main battle tank.

Sponsor. The Pakistan Ministry of Defense, through the Pakistan Army, sponsors the development and Pakistan Army procurement of the Al-Khalid.

Licensees. None.

Status. Development through full-rate serial production.

Total Produced. Through 2023, we estimate the contractor produced 1,074 Al-Khalid tanks.

Application. Armored mobile weapons systems, optimized for high-speed offensive and breakthrough operations, as well as defensive fire support.

Price Range. In 2024 U.S. dollars, the Al-Khalid carries an estimated unit price of \$5.68 million.

Contractors

Prime

Heavy Industries Taxila, Heavy Mechanical Complex	http://www.hmc.com.pk/ , Hattar Rd, Taxila, Taxila, Pakistan, Tel: + 92 51 51 9314130 7, Fax: + 92 51 9314151, Email: techdte@micro.net.pk , Prime
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Subcontractor

V.A. Malyshev State Enterprise, V.A. Malyshev Research and Production Assn	http://www.malyshevplant.com , Plehanovskaya St, 126, Kharkov, Ukraine, Tel: + 380 57 739 30 08, Fax: + 380 57 766 87 33, Email: marketing@malyshev.kharkov.ua (6TD-2 Diesel Engine and Gearbox)
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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

Al-Khalid Archived FEB**Technical Data**

Crew. Three: commander, gunner, and driver.

Armor. Conventional rolled homogeneous steel armor, with an additional layer of composite armor over the frontal arc. This armor suite is of modular design; it can also accommodate explosive reactive armor (ERA), as required.

Dimensions. The following dimensions reflect the preproduction tank; the data are subject to change. The fuel capacity estimate is based on the Chinese designs (notably the Type 90-II) from which Pakistan apparently derived the Al-Khalid.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	6.9 m	22.63 ft
Width	3.41 m	11.19 ft
Height	2.34 m	7.68 ft
Combat weight	45.52 tonnes	50.18 tons
Fuel capacity	1,380 liters	367.02 gal

Performance. The following data reflect the Chinese tanks that serve as the design basis for the Al-Khalid. The automotive performance data reflect use on a paved road.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	70 kmph	43.47 mph
Maximum range	414 km	257.24 stat mi
Step	85 cm	2.79 ft
Trench	3.0 m	9.84 ft
Slope	31 deg	31 deg
Gradient	60 deg	60 deg
Fording	1.4 m	4.59 ft

Engine. Malyshev 6TD-2 water-cooled, eight-cylinder diesel engine. This powerplant generates 894.84 kilowatts (1,200 hp), with a power-to-weight ratio of 26.36 kilowatts per tonne (23.91 hp/ton).

Gearbox. Unspecified Malyshev semi-automatic hydromechanical gearbox, with four forward and two reverse gears.

Suspension and Running Gear. Torsion bar suspension, with six dual-tired roadwheels and three track return rollers on each side. The drive sprocket mounts to the rear. The tracks feature replaceable rubber pads.

Armament

Main Armament. The P-885 facility of Heavy Industries Taxila (HIT) produces the 125mm smoothbore tank cannon, featuring a thermal sleeve and fume extractor. Like similar Chinese and Ukrainian ordnance, this weapon is apparently a variation of the Russian 125mm 2A46 smoothbore tank cannon. This ordnance features a rate of fire of six to eight rounds per minute.

The Al-Khalid carries 39 rounds of 125mm ammunition, with 22 rounds in the carousel-type automatic loader. Available ammunition types include:

- Armor Piercing Fin Stabilized Discarding Sabot (APFSDS)
- High Explosive Fin Stabilized (HE-FS)
- High Explosive Anti-Tank Fin Stabilized (HEAT-FS)

Secondary Armament. One 7.62x54mm coaxially mounted machine gun; one 12.7x107mm machine gun on a remote-firing pintle mount on the turret roof. The Al-Khalid carries 2,000 rounds of 7.62x54mm ammunition and 500 rounds of 12.7x107mm ammunition. Each side of the turret mounts four electrically operated grenade launchers. The Al-Khalid normally carries 12 smoke and four HE grenades for these launchers.

Fire Control. The computerized fire control suite features a stabilized laser rangefinder integral with the gunner's sight, a secondary coincidence-type rangefinder, and a digital ballistic computer with several sensor inputs. This tank can fire on the move, both day and night.

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Program Review

Background. The Al-Khalid program, also known as the MBT-2000 or P-90, began in 1988 with substantial assistance from the People's Republic of China. In fact, the PRC has been instrumental in Pakistan's efforts to wean itself off U.S. military hardware.

Part of a Larger Effort

Gen. Mirza Aslam Beg, then Chief of Staff of the Pakistan Army, officially announced the Al-Khalid program in July 1990 as part of a larger effort to enhance Pakistan's tank inventory. This effort involves three major elements:

- Modernization and retrofit of the Type 59 inventory
- License assembly/production of Chinese Type 69-II and Type 85-IIM tanks
- Development and production of a new main battle tank, the Al-Khalid

In 1990, Pakistani officials stated that the Al-Khalid program was worth the equivalent of \$1.2 billion. The HIT facility completed the first prototype of the Al-Khalid in June 1991; operational test and evaluation began in 1992. The Pakistan Army accepted the initial deliveries of the Al-Khalid in September 2004.

Significant Chinese Influence

In general appearance, the Al-Khalid tank resembles the recent series of Chinese tanks. In fact, the current production-model Al-Khalid tank reportedly borrows components from other Chinese tanks in Pakistani service:

- 10 percent from the Type 59
- 15 percent from the Type 69-II
- 20 percent from the Type 85
- 50 percent from the Type 90-II

Approximately 30 percent of the components in the initial-production Al-Khalid tanks were of non-Pakistani manufacture. However, the indigenous supply of components has increased substantially as serial production has progressed.

In the mid-2000s, Heavy Industries Taxila introduced the Al-Khalid-1 variant, featuring enhanced fire control systems and increased ordnance capacity over the base Al-Khalid design.

Open-source reporting indicates that China and Pakistan are also collaborating on a significant upgrade of the Al-Khalid MBT, tentatively dubbed the Al-Khalid II in media and industry sources.

Although technical information on this program remains sparse and somewhat unreliable, open-source reporting indicates the new model could integrate some of the same upgraded features and technical systems found in China's most modern export-focused tank design, the MBT-3000.

Press sources suggest that the new model will retain the Malyshev Plant 6TD-2 engine utilized by the original Al-Khalid design. However, a variant equipped with a more powerful 1,500-hp engine is already reported to be in development.

The MBT-3000 is also commonly referred to as the VT-4 in industry and press materials.

Description. The Al-Khalid tank exhibits a conventional three-compartment layout. The driver sits in the center of the forward hull. The driver's station features a single-piece hatch cover. The powerplant and gearbox mount in the rear engine compartment. The fighting compartment/turret occupies the center of the vehicle.

Day/Night Capability

The commander sits to the right of the main armament; the gunner sits to the left. Both turret crew stations feature roof-mounted hatch covers; the commander's hatch also allows access to the 12.7x107mm machine gun. The commander's station features a roof-mounted stabilized panoramic sight with day/night capability and a laser rangefinder. The auto-tracking laser rangefinder interfaces with the gunner's sight. The gunner's station features an integrated stabilized day/night sight, with a thermal imaging device and a laser rangefinder. The Al-Khalid fire control suite enables the tank to engage moving targets both day and night.

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Al-Khalid Main Battle Tank

Source: Government of Pakistan

Funding

The Pakistan Ministry of Defense, through the Pakistan Army, funds the development and Pakistani procurement of the Al-Khalid, with some financial aid from the People's Republic of China.

Contracts/Orders & Options

In Nov 2004, reports surfaced that the Saudi Ministry of Defense had placed orders worth an estimated \$1.2 billion to equip a Pakistan Army armored brigade for deployment to Saudi Arabia during the period 2005-2009. Open-source reporting indicated that the contracts included the procurement of 65 Al-Khalid tanks and up to 400 M113 Al-Hamza armored infantry fighting vehicles. However, this contract does not appear to have reached fruition.

In 2011, the Bangladeshi Army ordered at least 44 MBT-2000 tanks from the People's Republic of China. The MBT-2000 is an outgrowth of a joint Chinese-Pakistani tank development program. The Pakistani version is known as Al-Khalid. The first MBT-2000 tanks were delivered to Bangladesh in 2012.

Worldwide Distribution/Inventories

Export Potential. In April 2006, Saudi Arabia reportedly began desert trials of the Al-Khalid toward possible Saudi procurement. Successful completion of the trials could have led to a Saudi procurement contract, worth \$600 million, for up to 150 Al-Khalid tanks. If executed, this would have been the largest single export contract ever recorded for Pakistan's defense industry, but talk of the deal subsequently subsided.

In 2011, Bangladesh ordered 44 VT-1A tanks from Chinese state manufacturer NORINCO. The VT-1A is an export variant of the same Chinese Type 90-II/MBT-2000 design from which the Al-Khalid is adapted. Open-source reporting indicates that the first batch of tanks was handed over to Bangladesh in December 2012 and that deliveries have now been completed.

Although the designations VT-1A and MBT-2000 are often deployed interchangeably in media and industry sources, the two models ostensibly possess slight differences in performance specifications and technical outfitting.

Reports indicate that Sri-Lanka purchased 22 Al-Khalid MBTs in 2009.

Unconfirmed reports indicate that Myanmar and Morocco have acquired unspecified quantities of MBT-2000/VT-1A MBTs, but details regarding these deals remain sparse and difficult to confirm.

Countries. **Bangladesh** (44 MBT-2000); **Pakistan** (1,052 Al-Khalid); **Sri Lanka** (22 Al-Khalid).

Forecast Rationale

Although Pakistan's Army has traditionally expressed its procurement goal for the Al-Khalid program to be 600 units, the Forecast International Weapons Group estimates actual procurement has exceeded 1,000 units.

Procurement of Al-Khalid by the Pakistan Army should sustain the vehicle's production line through at least 2030.

The Saudi Saga

Saudi Arabia first expressed interest in procurement of the Al-Khalid MBT in the mid-2000s, and reports of a potential Saudi Al-Khalid contract have regularly waxed and waned over the subsequent years.

Credible reports of a potential Saudi-Pakistani arms deal re-emerged in 2014 as the two countries made a concerted effort to expand economic and diplomatic engagement and cooperation. In March 2014, Saudi Arabia extended a \$1.5 billion loan to Pakistan to be used to buttress the country's foreign currency reserves and facilitate the completion of domestic infrastructure projects.

Statements made by officials from HIT to the press confirmed prior rumors that Saudi Arabia has accepted a small quantity of Al-Khalids for evaluation and desert trials.

However, expectations regarding the potential for Saudi procurement of the Al-Khalid should be tempered by the lengthy history of speculation and unrealized statements surrounding this contract, as well as by the regularity with which such long-rumored deals never come to fruition.

Al-Khalid II

The Al-Khalid II is reportedly nearing entry onto the international market. We expect HIT will unveil the new variant and begin actively marketing it for export within the next few years.

Open-source reporting indicates that this enhanced Al-Khalid model could integrate some of the same technical and fire control systems utilized by NORINCO's most modern export-focused tank design, the MBT-3000, also commonly referred to as the VT-4.

However, details on the new variant and its connection to the MBT-3000 remain sparse and conflicting, with other sources indicating that the improved model is largely unrelated to the MBT-3000. HIT may nevertheless be interested in manufacturing the vehicle under a new program designation via a licensed production and cooperation arrangement similar to that forged for the Al-Khalid program.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION													
Designation or Program	Thru 2023	High Confidence					Good Confidence			Speculative			Total
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
Heavy Industries Taxila													
Al-Khalid													
	1,074	35	35	35	35	35	25	25	25	25	25	300	
Total	1,074	35	35	35	35	35	25	25	25	25	25	300	