

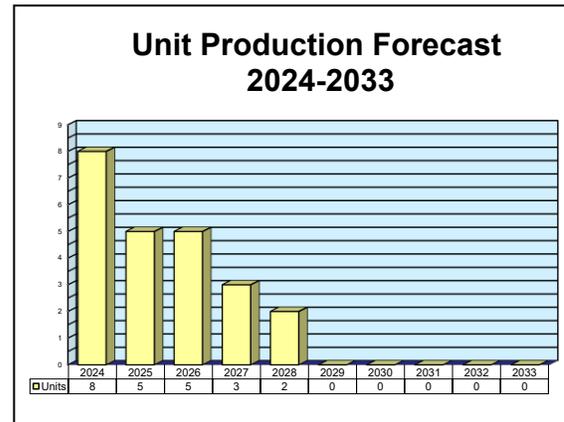
ARCHIVED REPORT

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Type WZ 551

Outlook

- Serial production for domestic PLA procurement and export is likely winding down, with PLA appearing more focused on upgrading existing models
- Exports of Type WZ 551 generally believed to be second-hand material, although Zimbabwe reportedly took delivery of around 24 new-build models through 2024
- Any export orders will likely be small in number and confined to poorer developing nations



Orientation

Description. A wheeled armored vehicle.

Sponsor. The People's Republic of China Ministry of National Defense, through the People's Liberation Army (PLA), sponsors the development and procurement of the WZ 551 series.

Licensees. Licensed production in Sudan.

Status. Development through serial production.

Total Produced. Through 2024, we estimate the PRC State Arsenal system produced at least 2,754 Type WZ 551 vehicles in several models and variants.

Application. A wheeled armored personnel carrier, optimized for transporting infantry during both offensive and defensive operations.

Price Range. In 2023 U.S. dollars, the base Type WZ 551 armored personnel carrier (APC) reportedly maintains a unit price of \$238,900.

Contractors

Prime

China North Industries Corp (NORINCO)	http://www.norinco.cn , 12A Guang An Men Nan Jie, PO Box 100053, Beijing, China, Tel: + 86 10 6352 9988, Fax: + 86 10 6354 0398, Email: norinco@norinco.cn , Prime
Military Industrial Corporation Sudan	PO Box 10783, Khartoum, Sudan, Tel: + 249 185348429, Fax: + 249 185340724, Email: defence@mic.sd , Licensee

Subcontractor

Zahnradfabrik Friedrichshafen AG	http://www.zf.com , Graf von Soden Platz 1, Friedrichshafen, Germany, Tel: + 49 07541 77 0, Fax: + 49 07541 77 908000, Email: postoffice@zf.com (6 HP 500 Automatic 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

Type WZ 551**Technical Data**Type WZ 551A Armored Personnel Carrier

Source: NORINCO

Type WZ 551 (WZ 551A)

Crew. Two: commander and driver, plus 11 fully equipped infantrymen.

Armor. Conventional rolled homogeneous steel-alloy armor, providing protection from small arms fire and ballistic fragments.

Configuration. 6x6.

Dimensions. The following data reflect the basic 6x6 WZ 551A armored personnel carrier.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	6.73 m	22.08 ft
Width	2.86 m	9.38 ft
Height	2.27 m	7.45 ft
Combat weight	15.00 tonnes	16.53 tons

Performance. The speed and range data reflect use on a paved road.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	90 kmph	55.93 mph
Maximum range	800 km	497.12 stat mi
Step	50 cm	1.64 ft
Trench	1.20 m	3.90 ft
Slope	30%	30%
Gradient	70%	70%
Fording	Amphibious	Amphibious
Water speed	8.50 kmph	5.28 mph

Engine. Deutz BF8L 413F four-cylinder, air-cooled diesel engine, produced under license by NORINCO. This powerplant generates 238.72 kW (320 hp), with a power-to-weight ratio of 15.91 kW per tonne (19.36 hp/ton). The 24-volt electrical system features two 12-volt/180-ampere-hour batteries.

Gearbox. Zahnradfabrik Friedrichshafen 6HP500 automatic gearbox, with one reverse and five forward gears.

Suspension and Running Gear. Combination coil spring and hydropneumatic shock damping suspension. The vehicle mounts 14.00x20 run-flat tires.

Armament. One 12.7x107mm Type 54 machine gun (1,000 rounds). The vehicle can also carry a 7.62x54mm machine gun.

Fire Control. None, other than the standard machine gun sights.

Type WZ 551



Type WZ 551 IFV

Source: NORINCO

Type WZ 551B

Crew. Two: commander and driver, plus 10 fully equipped infantrymen.

Configuration. 6x6.

Dimensions. The following data reflect the basic WZ 551B armored personnel carrier. Height is to top of hull (excluding turret).

	<u>SI Units</u>	<u>U.S. Units</u>
Length	6.80 m	22.31 ft
Width	2.86 m	9.38 ft
Height	2.27 m	7.45 ft
Combat weight	15.80 tonnes	17.42 tons

Performance. The speed and range data reflect use on a paved road.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	100 kmph	62.14 mph
Maximum range	800 km	497.12 stat mi
Step	50 cm	1.64 ft
Trench	1.20 m	3.90 ft
Slope	30%	30%
Gradient	60%	60%
Fording	Amphibious	Amphibious
Water speed	8 kmph	4.96 mph

Engine. Deutz BF8L 413FC four-cylinder, air-cooled supercharged diesel engine, produced under license by NORINCO. This powerplant generates 238.72 kW (320 hp), with a power-to-weight ratio of 15.11 kW per tonne (18.37 hp/ton). The 24-volt electrical system features two 24-volt/180-ampere-hour batteries.

Gearbox. Same as WZ 551A. Earlier models featured the 5S111GPA manually operated gearbox, with one reverse and nine forward gears.

Suspension and Running Gear. Combination coil spring and hydropneumatic shock damping suspension.

Armor. Same as WZ 551A.

Design Features. Improved version of the WZ 551A, featuring a new turret and a more powerful engine.

Armament

Main Armament. One 12.7x107mm Type 54 or 14.5x114mm machine gun, mounted in a manually operated one-man turret.

Secondary Armament. One coaxially mounted 7.62x54mm machine gun. Four electrically operated smoke grenade launchers mount on the rear of the turret.

Fire Control. None, other than the standard machine gun sights.

Type WZ 551

Type WMZ 551B

Crew. Two: commander and driver, plus 11 fully equipped infantrymen.

Configuration. 6x6.

Armor. Redesigned, all-welded steel hull offers improved armor protection from small arms fire and ballistic fragments. Open-source reporting suggests the WMZ 551B may also be compatible with additional appliqué armor.

Dimensions. The following data reflect the basic WMZ 551B armored personnel carrier. Height is to top of hull (excluding turret).

	<u>SI Units</u>	<u>U.S. Units</u>
Length	6.80 m	22.31 ft
Width	2.86 m	9.38 ft
Height	2.27 m	7.45 ft
Combat weight	15.80 tonnes	17.42 tons

Performance. The speed and range data reflect use on a paved road.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	90 kmph	55.93 mph
Maximum range	800 km	497.12 stat mi
Step	50 cm	1.64 ft
Trench	1.20 m	3.90 ft
Slope	30%	30%
Gradient	70%	70%
Fording	Amphibious	Amphibious
Water speed	8 kmph	4.96 mph

Engine. Same as WZ 551, with the same performance specifications.

Gearbox. Same as WZ 551. The WMZ 551B features a recirculating ball system, and hydraulically assisted steering on the front four wheels.

Suspension and Running Gear. Combination coil spring and hydropneumatic shock-damping suspension. The vehicle mounts 14.00x20 run-flat tires, with a central tire inflation system.

Armament

Main Armament. One 12.7x107mm Type 54 or 14.5x114mm machine gun, mounted in a manually

Design Features. NORINCO reportedly designed the WMZ 551B to optimize its compatibility with a variety of weapon system and turret combinations. Unlike the earlier WZ 551 series vehicles, the WMZ 551B mounts the engine in the right-front of the hull, increasing the vehicle's usable internal volume.

operated one-man turret. The WMZ 551B can also mount a variety of other weapons systems, such as medium-caliber cannon, mortars, and various missile systems.

Secondary Armament. One coaxially mounted 7.62x54mm machine gun. Four to eight electrically operated smoke grenade launchers mount on the turret.

Fire Control. None, other than the standard machine gun sights.

Variants/Upgrades

Variants. With an eye toward the international market, NORINCO has developed the following variants of the basic Type WZ 551 armored personnel carrier design.

Designation	Description
WZ 551(A)	Basic armored vehicle. See Technical Data , above.
WZ 551B	Improved vehicle, featuring a new turret and a more powerful engine. See Technical Data , above.

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Designation	Description
WMZ 551B	Improved version of the WZ 551B, featuring a redesigned hull for enhanced protection and a variety of turret-mounted weapons systems. See Technical Data , above.
Anti-Tank	Features one-man turret mounting a four-round Red Arrow 8 anti-tank guided missile launcher. Crew of four. Vehicle stores eight additional missiles in hull.
Anti-Tank Variant	Features a new turret mounting a 73mm cannon, a 7.62mm machine gun, and a four-round Red Arrow 9 anti-tank guided missile system.
Type NGV-1 IFV	Infantry Fighting Vehicle. Features Dragar one-man power-operated turret mounting a Nexter (formerly Giat) 25mm M811 cannon, a 7.62mm machine gun, and four smoke grenade launchers.
25mm IFV	Earlier models of this variant were outfitted with a one-man turret and externally mounted 25mm or 30mm (400 rounds) cannon and a 7.62mm machine gun (1,000 rounds). Current IFV models maintain this armament but integrate a different one-man turret module, one that is increasingly standardized across the NORINCO product line. Also known as the Type 82, Type 90, and Type 92.
73mm IFV	Features same turret as the Type WZ 501. Mounts a 73mm smoothbore cannon (40 rounds) similar to the Russian 2A28 ordnance. Also mounts a 7.62mm machine gun, a 12.7mm Type 54 machine gun, and a Red Arrow 73 anti-tank guided missile system (four rounds).
Light Patrol	Reconnaissance vehicle, also known as the Type WZ 901 or Type 92B. Mounts a 7.62mm machine gun in a one-man turret.
Self-Propelled Mortar	Mounts 82mm or 120mm mortar. Crew of four.
Ambulance	Features raised rear compartment to carry four litters. Armed with a Type 54 12.7mm machine gun (500 rounds).
122mm SP Artillery	8x8 variant (based on lengthened 6x6 chassis) featuring a turret-mounted 122mm cannon.
Air Defense	8x8 variant designated WZ 554, featuring two turret-mounted 25mm cannon.
PL-9 SAM System	Features PL-9 surface-to-air missile system.
PTL-02	Features a two-man turret capable of mounting a 100mm or 105mm cannon. The 100mm variant is known as the PTL-02, while the 105mm export variant is alternatively referred to as the WMA301 Assaulter.
Shareef-2	Variant produced by Sudan's Military Industrial Corporation. Mounts one-man turret and armed with a 30mm cannon and 7.62mm coaxial machine gun.
VN2	Export variant equipped with a more powerful 300 kW/402 hp engine and integrating a one-man turret module equipped with a 30mm cannon and 7.62mm coaxial machine gun.

Modernization and Retrofit Overview.

Photographs from Chinese state media sources suggest that a modest quantity of WZ 551 series vehicles have been integrated with improved fire control systems and externally mounted imaging devices.

These upgrades have been sighted on WZ 551 IFV variants operated by the PLA's Hong Kong Garrison. The vehicles integrate a one-man turret and a 25mm

cannon. Although the armament installed on export-model WZ 551 vehicles varies considerably by build and buyer, this one-man turret module has become an increasingly ubiquitous feature across NORINCO's armored vehicle product line. Export models of NORINCO's ZBL-09 APC are also outfitted with this turret module, and it is a standard component of the latest VN2 export variant of the WZ 551.

Type WZ 551

Program Review

Background. Over the past two decades, the People's Republic of China (PRC) has emerged as a significant player in the international combat vehicle market.

The Chinese have exploited their licensed (and unlicensed) production of foreign designs – notably Russian, and more recently Belgian, French, and South African – to develop a modern indigenous design and production capability. In many cases, the People's Republic of China State Arsenal has adapted and improved existing designs to suit specific People's Liberation Army (PLA) requirements.

The PRC has built up its combat vehicle industry – under the auspices of China North Industries Corporation (NORINCO) – to the point that it represents a potentially significant threat to other players throughout the international market.

Western Technology, Domestic Design

The Type WZ 551 series represents one of the PLA's most significant combat vehicle programs. Although based on Western technology, the Type WZ 551 is a totally indigenous design, representing a major new approach to Chinese combat vehicle development.

Description. The Type WZ 551 design exhibits a clear Western influence, particularly that of the French Véhicule de l'Avant Blindé. However, the Type WZ 551 is longer, wider, and heavier than the French VAB.

The driver sits at the left-front of the hull, with the commander to his right; the gunner's station is to the rear of the commander. An airtight door separates the entire forward crew compartment from the rest of the vehicle. The windscreens feature armored shutters. When the shutters are in place, the driver employs three periscopes; the center periscope is interchangeable with an infrared night vision unit. Both the commander's and driver's stations feature a circular rear-opening roof hatch.

Funding

The People's Republic of China Ministry of National Defense, through the People's Liberation Army, funded the development and PLA procurement of Type WZ 551 series vehicles.

Engine at Vehicle's Center of Gravity

The engine compartment is located to the rear of the forward crew compartment. A door on each side of the hull, between the front two wheels, provides access to the engine. The Type WZ 551, like all other Chinese vehicles of this type, is fully amphibious. Two shrouded propellers provide water propulsion.

The rear troop compartment features bench seats and four firing ports on each side of the hull. A large rear door provides primary troop access/egress; two rectangular hatches on each side of the roof provide secondary access. Standard equipment on the Type WZ 551 series includes run-flat tires, a bilge pump, a trim vane, an automatic fire detection / suppression system, and a nuclear, biological, and chemical (NBC) protective suite.

Type WZ 551B: Improved Version

In 1996, the PRC revealed a new version of the Type WZ 551 featuring a new one-man manually operated turret and a more powerful version of the Deutz diesel engine.

Type WMZ 551B: Flexible Redesign

In early 2003, reports surfaced that NORINCO was developing a further improved version of the WZ 551, featuring a redesigned hull optimized for use as a weapons platform. Testing of the prototype WMZ 551B reportedly commenced later that year.

Unlike on earlier WZ 551 models, the engine compartment of the WMZ 551B is located to the right of the driver, increasing the internal volume of the vehicle. In this vehicle, the commander sits to the rear of the driver. The commander's station features a raised cupola with a single-piece hatch cover and periscopes.

Type WZ 551**Worldwide Distribution/Inventories**

Export Potential. Since the early 1980s, the People's Republic of China has emerged as a major player in the international combat vehicles market. The PRC (through NORINCO) continues to develop and market a line of rugged, easily maintained, and increasingly sophisticated vehicles. With their bargain-basement unit prices, these vehicles have garnered appeal with less-developed nations. The potential impact of Chinese combat vehicles such as the Type WZ 551 series on the international market is significant due to China's willingness to sell to any country regardless of political ties or security situation. But most sales by China of the WZ 551 are now of second-hand rather than new-production vehicles, meaning transfers from PLA stocks appear to be the avenue for global buyers.

In February 2013, Sudan's Military Industrial Corporation unveiled the Shareef-2 armored infantry fighting vehicle at the IDEX International Defense Exhibition. The Shareef-2 design is functionally identical to the WZ 551 IFV, featuring a one-man turret fitted with a 30mm cannon. Although no formal announcement has been made on the matter, it is probable that the Shareef-2 is a license-built variant of its Chinese counterpart.

Countries. Angola (15), Argentina (four), Bosnia-Herzegovina (10), Burkina-Faso (seven), Burundi (15), Cameroon (12), Chad (30), Djibouti (one), Ethiopia (20), Iran (150), Kenya (35), Mozambique (30), Myanmar (unspecified), Nepal (five), Niger (two), Oman (50), People's Republic of China (2,554), Sri Lanka (190), Sudan (50), Tanzania (10), Zambia (five), and Zimbabwe (24).

Forecast Rationale

The WZ 551 series of vehicles has occupied an important role in the PLA's ambitious campaign to overhaul and standardize its armored vehicle inventories over the past two decades.

Although the WZ 551 design is certainly not state-of-the-art by international standards, it is this very simplicity that has made the vehicle an important asset in the PLA's modernization efforts.

The ease of adapting the basic WZ 551 platform to perform in varied operational roles has been instrumental in allowing the People's Liberation Army Ground Force (PLAGF) to partially fulfill its incredibly expansive and diverse mechanized requirements.

Current estimates suggest that the PLAGF now operates in excess of 2,000 WZ 551 series vehicles.

Although concrete sales data on Chinese defense products remain sparse, open-source reporting and photographic evidence indicates that WZ 551 series vehicles have in the past been sold or transferred to a number of international operators.

Numerous states in Africa, the Middle East, and Asia have absorbed WZ 551s to upgrade their mechanized force structures.

The WZ 551's low unit cost, ease of adaptability, and dual operational functionality – capable of performing in both military and law-enforcement roles – make the model attractive for developing nations. More to the point, the ability to purchase hardware without political strings being attached makes Chinese systems in general attractive to countries incurring sanctions from or being sidelined by Western suppliers.

The introduction of the export-oriented VN2 variant would seem to have provided an additional boon to the sales potential of the WZ 551 series. The mine-resistant VN2 model mounts a one-man turret with a 30mm cannon and 7.62mm coaxial machine gun. It also integrates a more powerful 300-kW/40-hp powerplant.

However, to date the number of officially recognized sales is hard to determine and likely very low.

With more advanced wheeled armored vehicle designs likely to begin superseding the WZ 551 in the near future, the current model is expected to be modified for PLAGF use, but new production is likely to cease beyond a small export order or two in the coming five years.

Type WZ 551

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program		High Confidence				Good Confidence			Speculative			
	Thru 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
China North Industries Corp (NORINCO)												
Type WZ 551												
	2,837	8	5	5	3	2	0	0	0	0	0	23
Total	2,837	8	5	5	3	2	0	0	0	0	0	23