

# ARCHIVED REPORT

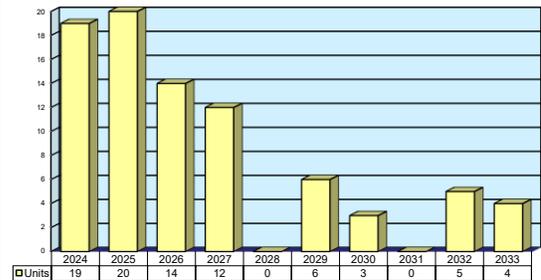
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## Type 16 Maneuver Combat Vehicle

### Outlook

- Japan MoD Medium-Term Defense Plan for FY19-FY23 called for the procurement of 134 Type 16 Maneuver Combat Vehicles in FY22-FY23
- Type 16 MCV is meant to combine the firepower of a main battle tank with the mobility of a wheeled IFV
- Production forecast reflects domestic procurement of the Type 16 MCV for service with the Japan Ground Self-Defense Force (JGSDF)

Unit Production Forecast  
2024-2033



### Orientation

**Description.** Wheeled tank destroyer.

**Sponsor.** The Japan Ministry of Defense sponsors the development of the Type 16 MCV through the Acquisition, Technology and Logistics Agency (ATLA).

**Licensees.** None.

**Status.** Development through serial production.

**Total Produced.** We estimate approximately 228 Type 16 MCVs, including prototypes, were built through 2023.

**Application.** The Type 16 is a dedicated tank destroyer and direct-fire infantry support vehicle intended to perform both offensive and defensive battlefield operations.

**Price Range.** In 2024 U.S. dollars, the Type 16 Maneuver Combat Vehicle carries an estimated unit price of approximately \$10.07 million.

### Contractors

#### Prime

<b>Mitsubishi Heavy Industries Ltd, (MHI)</b>	<a href="http://www.mhi.com">http://www.mhi.com</a> , 2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo, Japan, Tel: + 81 3 6275 6200, Prime
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#### Subcontractor

<b>Japan Steel Works Ltd</b>	<a href="http://www.jsw.co.jp">http://www.jsw.co.jp</a> , Gate City Ohsaki-West Tower, 11-1, Osaki 1-chome, Tokyo, Shinagawa-ku, Japan, Tel: + 81 5745 2001, Fax: + 81 5745 2025 (105mm Cannon)
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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](mailto:rich.pettibone@forecast1.com)

## Type 16 Maneuver Combat Vehicle

### Technical Data

#### Type 16 MCV

**Crew.** Four: commander, gunner, loader, and driver.

**Armor.** The Type 16 features steel-alloy armor in a modular configuration across both the chassis and turret, allowing for the potential integration of additional protection as required by the JGSDF.

**Configuration.** 8x8.

**Dimensions.** The following data reflect the definitive production vehicle. Length includes the 105mm cannon.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	8.45 m	27.72 ft
Width	2.98 m	9.77 ft
Height	2.87 m	9.41 ft
Combat weight	26 tonnes	28.66 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	62.13 mph
Maximum range	400 km	248.54 stat mi
Step	60 cm	1.96 ft
Trench	1.75 m	5.74 ft
Slope	30%	30%
Gradient	60%	60%
Fording	1.2 m	3.94 ft

**Engine.** The Type 16 MCV is equipped with a four-cylinder liquid-cooled, turbocharged diesel powerplant generating 425 kilowatts (570 hp), for a power-to-weight ratio of 16.33 kilowatts/21.9 hp per ton.

on the roof of the turret, positioned between the commander's and gunner's stations on most production models, while the turret integrates one coaxial Sumitomo Type 74 7.62mm machine gun.

**Gearbox.** Unspecified automatic transmission system.

**Fire Control.** The Type 16 is outfitted with a modern computer-based fire control and stabilization suite, allowing for robust fire-on-the-move capability.

**Suspension and Running Gear.** Special purpose independently sprung active suspension system codeveloped by Mitsubishi Heavy Industries and Daikin Industries. The Type 16 features a centrally controlled tire inflation system for its Bridgestone L302 395/85 R20 run-flat tires or Michelin run-flat tires.

The primary targeting sight, located at the center-roof of the turret just forward of the gunnery/loader position, features full day/night capability and can be traversed 360 degrees and likely feeds into a computerized system intended to ease the crew's ability to mark, queue and dispatch targets, akin to the system installed in the Mitsubishi Heavy Industries Type 10 main battle tank (MBT). Additional forward-facing visual systems are located at the right-front of the turret beyond the commander's station, and one laser rangefinder detection system is located on each side of the vehicle's turret.

The Type 16 is equipped with a weapon stabilization and recoil absorption system intended to reduce the strain placed on the vehicle's chassis and onboard technical systems by the recoil of the 105mm gun, thereby extending the vehicle's ability to operate in the field while reducing its maintenance requirements and overall life-cycle costs.

The Type 16 is outfitted with a weather detection sensor system provided by French defense contractor Thales. These sensors assist the Type 16's gunnery crew in accounting for the influence of environmental conditions on the performance and trajectory of the vehicle's primary ordnance.

#### Armament

**Main Armament.** Japan Steel Works stabilized 105mm gun. The ordnance features a muzzle break and fume extractor and primarily utilizes Type 93 105mm Armor-Piercing Fin Stabilized Discarding Sabot (APFSDS) and Type 91 HEAT-MP rounds.

**Secondary Armament.** One pintle-mounted Sumitomo license-produced M2 12.7mm machine gun is mounted

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### Variants/Upgrades

**Variants.** The primary design principles behind the Type 16 MCV are oriented around the fulfillment of its specialized role as a direct-fire support vehicle and tank destroyer.

Nevertheless, the weighty 8x8 platform is potentially capable of hosting an array of variants. Reports indicate that the JGSDF has considered armored ambulance, command and control, and 120mm mortar variants, but it is unclear if these will ever be produced.

In 2014, Mitsubishi Heavy Industries revealed a proposed family of new 8x8 APC/IFV vehicles utilizing the base chassis of the MCV.

Contemporary reporting indicated that MHI hoped to offer the vehicle to overseas customers following the implementation of proposed alterations to Japan's traditionally restrictive defense export laws.

In 2016, reports surfaced that MHI was seeking an overseas partner with which to market Japanese defense products in the international arena, but there has been scant additional news regarding the program since then.

**Modernization and Retrofit Overview.** Not applicable at this time.



Type 16 Maneuver Combat Vehicle

Source: Japan Ground Self-Defense Force

### Program Review

**Background.** In the decades subsequent to the conclusion of the Cold War, the prevailing economic and strategic conditions in Asia have undergone profound transformations.

Japanese policy planners must now contend with a considerably more uncertain strategic environment than the one they faced throughout the latter half of the 20th century. This new security environment is one defined by the rapid ascent of the People's Republic of China as a major regional and international power, by the persistent stagnation of the Japanese economy, and, more recently, by an emerging anxiety regarding the role and commitment of the United States as a guarantor of Japan's security.

Japanese defense policy planners have therefore sought to adapt the country's military doctrines to better meet the country's emerging security challenges within the limitations imposed by its economic and political realities.

Although Japanese security doctrine long prioritized the protection of the home islands from a hypothetical large-scale land invasion from the north, the collapse of the Soviet Union and rise of China have seen Japan's primary strategic concern shift toward an array of potential crisis scenarios involving small islets and contested spaces along the maritime boundary lines of Japan's territorial domain.

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Likewise, the increasingly prominent role of the Japanese military in overseas peacekeeping and humanitarian operations since the 1990s has necessitated that military planners consider how best to equip the Army for the challenges posed by operational environments marked by state collapse, civil conflict or terrorism.

The Japanese military's requirement for a vehicle with the profile of the Type 16 emerged from this strategic environment, one in which a force's level of operational flexibility and capacity for rapid mobility stand to be the decisive determinants of its victory or defeat on the battlefield.

Design requirements for the MCV therefore called for a vehicle possessing the requisite firepower to fill the operational gap left by Japan's shrinking tank fleet, but at the same time light and mobile enough for air transport via the Japan Air Self-Defense Force's new Kawasaki C-2 transport and to readily traverse Japan's domestic road network.

Development of the Type 16 was launched during 2004-2006 as Japanese defense planners began to consider the need for a new vehicle design to meet these emerging challenges. The Japanese government began allocating funding for development in 2006, and the vehicle entered the early prototyping stages in 2009.

Throughout the mid-2000s and early 2010s, Japanese defense policy went through a tumultuous transitional period due both to the execution of a long-gestating institutional reorganization process and to successive scandals and crises in the political space.

During this period, the leadership of the Japanese defense establishment witnessed high levels of turnover, and plans for specific policy and acquisition targets became mired in vacillation and uncertainty.

Nevertheless, after much back and forth, the Japanese government and JGSDF eventually agreed to considerably reduce the active-duty MBT fleet. Under this ongoing program, all of the JGSDF's aging Type 74 MBT inventories are being phased out in favor of a leaner armored force comprising smaller numbers of modern Type 90 and Type 10 MBTs and supported by a large fleet of the more cost-effective and mobile MCVs.

The Type 16 proceeded through its final testing and trials phase in 2016, and entered serial production and active service with the JGSDF not long thereafter.

**Description.** The Type 16 MCV displays a conventional vehicle layout.

The Type 16's powerplant compartment is positioned at the left-front of the vehicle, with the turret housing the vehicle's weapons systems located in the center of the chassis.

The driver's position is located near the right-center of the vehicle just forward of the turret. The commander's and loader's positions are located on the right side of the vehicle turret, while the gunner sits to the left. The vehicle's main 105mm armament occupies the center of the vehicle turret.

The positions for the commander/loader, driver and gunner each feature a single-piece hatch located directly above for access/egress to and from the vehicle, with an additional entry and exit hatch located on the rear of the vehicle hull.

The driver's position features three forward-facing periscopes, while the commander's position features six for 360-degree visibility. Four smoke grenade launchers are located on each side of the vehicle turret.

An ammunition storage compartment occupies the rear of the vehicle chassis.

## Funding

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The Japan Ministry of Defense allocated an estimated JPY17.9 billion (\$183 million) toward research, development, testing and evaluation under the Type 16 Maneuver Combat Vehicle program. The vehicle was designed and developed by the Ministry of Defense's Technical Research and Development Institute (TRDI) in collaboration with selected Japanese contractors.

In 2014-2015, the Japanese government instituted structural reforms of the state defense sector that saw the TRDI brought under the umbrella of the new Acquisition, Technology and Logistics Agency (ATLA).

## Worldwide Distribution/Inventories

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The Type 16 Maneuver Combat Vehicle is only in service with the **Japan Ground Self-Defense Force**. The export of lethal military hardware remains prohibited under Japanese law.

## Type 16 Maneuver Combat Vehicle

### Forecast Rationale

The Type 16 MCV is well on its way to becoming an established component of the JGSDF's armored force structure for decades to come.

The Japan Ground Self-Defense Force is significantly reducing the scale of its active-duty main battle tank inventories, and has been steadily trimming its fleet from over 700 MBTs down to a planned total of roughly 300.

Over the past several years, the JGSDF has made significant progress toward abolishing redundant tank battalions and consolidating them into new rapid response and combat reconnaissance formations oriented around the Type 16.

The design of the Type 16 and its operational role are functions of the ongoing reorganization of Japan's national security strategy. Moving beyond Cold War security paradigms, this new strategy looks to ensure that Japan has the ability to respond effectively to security threats emanating from contested spaces beyond the immediate home islands and to the dangers posed by irregular security crises.

On the operational level, these requirements demand a reformed armored doctrine with an emphasis on rapid deployment capacity and battlefield mobility.

Although lingering debates remain within the Japanese defense and political establishment over the extent to

which the MBT fleet ought to be downsized, the salience of these arguments has receded over the past few years. In addition, the broader trajectory of Japanese defense policy will ensure robust annual acquisition of the Type 16 through the forecast period regardless of any subsequent changes made to the MBT fleet.

The Type 16 fulfills an operational and strategic role that is distinct from that of a traditional main battle tank. And, although its lower maintenance and life-cycle costs were important considerations in its eventual adoption, the vehicle is not simply intended as a cost-saving mechanism.

Nevertheless, the planned procurement of roughly 300 Type 16s will allow the JGSDF's armored fleet to maintain a firepower and deployment profile roughly equivalent to that of prior decades despite the downsizing of its tank fleet.

The continuous growth of the Japanese defense budget in response to intensifying regional frictions between Japan and the neighboring People's Republic of China may steadily tip the procurement target for the platform toward the higher end of this numerical spectrum. Limited production will likely continue beyond the fulfillment of the primary procurement total to account for attrition and the potential development of specialized variants.

### Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
<b>Mitsubishi Heavy Industries Ltd</b>												
<b>Type 16 &lt;-&gt; Type 16</b>	228	19	20	14	12	0	6	3	0	5	4	83
<b>Total</b>	228	19	20	14	12	0	6	3	0	5	4	83