



# PLA Ground Force Adopts 155mm Mobile Artillery System

**OE Watch Commentary:** Chinese media reports indicate that a mobile 155mm artillery system, the PCL-181, has been adopted by several military units across China. As detailed in the accompanying article, the system recently entered service with units of the Eastern Theater Command. Others have been identified as belonging to the Western Theater Command.

The PLA is estimated to have thousands of towed artillery pieces, mostly in 122mm or 152mm, but has adopted more mobile systems as the force becomes more mechanized.

As the passage reports, the six-wheeled PCL-181 weighs 25 tons compared to its 40-ton tracked equivalent, the PLZ-05. Chinese media reports indicate the PCL-181 has a top road speed of 90 kilometers per hour (km/h) and that its L52 howitzer has a firing rate of 4-6 rounds per minute. This represents an exchange of lethality for mobility and survivability, as the tracked vehicle has a reported top speed of 40 km/h and a maximum firing rate of 8- 10 rounds per minute.

To accommodate the long barrel, the cab is partially divided to allow the barrel to rest during transit. Photos of the interior of the system show that the PCL-181 has a digitized fire control system for rapid targeting. The system is capable of direct fire modes in limited arcs, and photos of the system in action appear to show partially deflated tires, which could help manage recoil.

While information about the ammunition fired by the PCL-181 has not been released, previous Chinese reporting noted that the tracked PLZ-05 self-propelled howitzer’s 155mm was capable of firing rocket-assisted and base bleed (which reduces drag from the low-pressure area at the rear of a projectile) projectiles.

Several types of 155mm shells have been displayed at various arms expos including Beidou-navigation system-guided shells, the GS-1, which has terminal phase search capability for use against armored targets, GP-6 laser-guided shells and base-bleed and rocket-assisted shells that can hit targets 25 kilometers away while hybrid shells with both rocket-assist and base-bleed can hit targets 54 kilometers away.

Compared to its tracked equivalent, the PCL-181 is unarmored and lacks the secondary armament, such as a pintle-mounted 12.7mm machine gun.

However, wheeled systems offer a number of important advantages compared to tracked systems, particularly lower weight, which means they can be more easily airlifted to crisis areas and operate in certain types of terrain, and at greater ground speed. As noted in the article, China’s strategic cargo aircraft, the Y-20, can transport two PCL-181s. The ability to more rapidly transport the systems could be important in a crisis on the Tibetan plateau or overseas as China develops expeditionary capabilities.

Chinese arms company NORINCO first developed 155mm artillery in the early 1980s, offering towed variants for export that resemble Belgian and Austrian designs. The first self-propelled howitzer to incorporate a 155mm main gun, the PLZ-45, was designed in the late 1980s. It has also been exported, primarily to customers in the Middle East. The PCL-181 is a further development of the SH-1 developed for the export market in the mid-2000s.

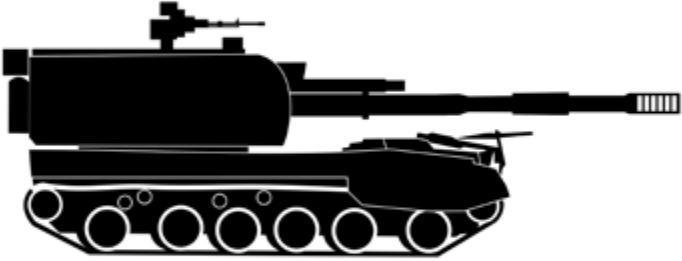
More recently, China has adopted or offered for export a number of truck-mounted howitzers and indirect fire systems. A 122mm variant, the PCL-09 is a six-wheeled version in service, and a lighter-weight four-wheeled system that may be a 120mm automatic mortar system has also been shown on Chinese media. The PLA Navy Marine Corps (PLANMC) has, for example, fielded a wheeled 122mm MLRS system called the Type 81, which offers superior mobility compared to tracked MLR systems such as the Type 89 already in service with the PLA Ground Forces.

While tracked systems will continue to play an important role in the PLA, wheeled systems like the PCL-181 represent the future direction of the PLA: highly mobile, networked systems providing precision fires in support of other combatant arms. **End OE Watch Commentary (Wood)**


### PLA Mobile Artillery



**PLZ-07**  
Crew: 5  
Weight: 25 tons  
Length: 6.66m  
Primary 122mm  
Armament: howitzer  
Ammunition 40  
carried:  
Secondary 12.7mm  
Armament: machine gun



**PLZ-05**  
Crew: 4  
Weight: 45 tons  
Length: 11.6m  
Primary 155mm  
Armament: howitzer  
Ammunition 40  
carried:  
Secondary 12.7mm  
Armament: machine gun



**PCL-181**  
Crew: 6  
Weight: 29.5 tons  
Length: Unknown  
Primary 155mm  
Armament: howitzer  
Ammunition 60  
carried:  
Secondary None  
Armament:

All data from public sources

Graphic by Peter Wood

## Continued: PLA Ground Force Adopts 155mm Mobile Artillery System



Y-20 at Airshow China 2016.

Source: Alert5 / CC BY-SA (<https://creativecommons.org/licenses/by-sa/4.0>)  
[https://commons.wikimedia.org/wiki/File:Y-20\\_at\\_Airshow\\_China\\_2016.jpg](https://commons.wikimedia.org/wiki/File:Y-20_at_Airshow_China_2016.jpg)

***“A single Y-20 can likely carry two PCL-181s, or a combination of one PCL-181 and one 30 ton-class Type 15 lightweight main battle tank, both of which are choices that offer frontline troops immense firepower... this will give the Chinese military more tactical flexibility in strategic transport and quick reaction operations.”***

**Source:** “China’s latest, most advanced howitzer enters Eastern Theater Command service,” *Global Times*, 30 April 2020. [http://www.81.cn/jwywpd/2020-04/30/content\\_9804758.htm](http://www.81.cn/jwywpd/2020-04/30/content_9804758.htm)

China’s most advanced vehicle-mounted howitzer, the PCL-181, recently entered service with the People’s Liberation Army (PLA) Eastern Theater Command, the theater command confirmed on Thursday. With technical details revealed for the first time, experts say the weapon is one of the best in the world.

In the past few days, troops of a brigade under the Eastern Theater Command received the 155mm vehicle-mounted howitzer, which made its public debut as a newly developed weapon at the National Day military parade on October 1, 2019 in Beijing, the Eastern Theater Command confirmed on its Sina Weibo account on Thursday.

The statement came after China Central Television (CCTV) on Wednesday reported the weapon had been commissioned. This report is also seemingly the first time an official source has identified the designation of the howitzer as the PCL-181.

Neither the Eastern Theater Command nor CCTV has specified how many howitzers were included in this delivery, but at least 18 were seen in the report.

The 155mm wheeled vehicle-mounted howitzer weighs only 25 tons, making it much lighter and faster and with longer endurance than the previous self-propelled howitzer which uses crawler tracks and weighs more than 40 tons, the CCTV report said, noting it can also hit targets at longer ranges with increased firepower.

This data means the PCL-181 not only has high mobility, but it can also be transported by large transport aircraft like the domestically made Y-20, which has a cargo capacity of more than 60 tons, a military expert who requested to remain anonymous told the *Global Times* on Thursday.

A single Y-20 can likely carry two PCL-181s, or a combination of one PCL-181 and one 30 ton-class Type 15 lightweight main battle tank, both of which are choices that offer frontline troops immense firepower, the expert said, noting that this will give the Chinese military more tactical flexibility in strategic transport and quick reaction operations.

The vehicle the howitzer is mounted on has a large driver’s cab that can accommodate all six artillery squad members, protecting them with bulletproof glass that enhances the unit’s survivability.

Digitalized control panels can be found in the cab, and this highly digitalized system allows artillery gun deployment with the press of a button, automatic gun calibration and half-automatic ammo reload. This can shorten the preparation time to shoot the weapon, giving the artillery stronger combat capabilities, according to the report.