

# CENTRE FOR JOINT WARFARE STUDIES



## CENJOWS

### GUNS AND ROCKETS – CHINESE PHL- 03 & PLZ 07

#### PHL-03 300 MM LONG-RANGE MULTIPLE ROCKET LAUNCHER (MRL)



1. According to media reports, the PHL-03 is based on the Russian BM-30 Smerch and includes technology provided by the Russians for its launch system, trajectory control system besides rockets and warheads. Its salient Characteristics are: -

- (a) 12-tube 300mm MRL mounted on vehicle with overall comb weight of 43 tons.
- (b) The vehicle is 12 meters in length, 3 meters in width and 3 meters in height.
- (c) It is based on a Wanshan WS2400 8x8 special wheeled chassis and has a 500 horsepower diesel engine.
- (d) The maximum road speed of the vehicle is 65 km / h with 850 kilometers range.
- (e) Each vehicle is capable of launching 24 rocket shells continuously and a combat unit can continuously fire 96 to 144 shells, covering the range of about 2 square kilometers.
- (f) Basic Rocket - maximum range of its shell is 70 kilometers with salvo time of 38 seconds and the refill time is 20 minutes.

2. Chinese PLA reported that improved rocket shells were also developed with the maximum range of 150 kilometers.

3. The new MRL artillery will be deployed for missions like seizing and control of key regions, and group assault in high-altitude terrains and deserts as well as close to rivers and lakes, under all weather conditions.

### **Current Status**

4. A Chinese People's Liberation Army (PLA) unit of Xinjiang Military Command deployed the country's latest PHL-03 long-range multiple rocket launcher (MRL) artillery system in Tibet.

5. A report in semi-official Global Times said that the PLA Unit deployed at a high-altitude plateau (read Tibet at an elevation of 5200 m) recently replaced its outdated artillery with digital, long-range heavy rocket artillery, greatly enhancing its all-weather combat capability in the border region.

[https://www.defenseworld.net/news/29538/Chinese PLA Deploys PHL 03 Long range Multiple Rocket Artillery in Tibet#.YLpezDYzat8](https://www.defenseworld.net/news/29538/Chinese_PLA_Deploys_PHL_03_Long_range_Multi_ple_Rocket_Artillery_in_Tibet#.YLpezDYzat8)

6. **TYPE 07 122 MM SELF-PROPELLED (SP) GUN**

- (a) The PLZ 07 122MM Tracked SP gun mounts a 122 mm gun armed turret on the PLZ45 hull.
- (b) Vehicle weight - 22.5 tons fully loaded, carrying 40 rounds of ammunition.
- (c) Vehicle dimensions - height 6.66 m ; Width 3.28 m; and 2.5 high to the turret roof.
- (d) Capacity - Crew of five.
- (e) Speed - Its 440 KW diesel engine gives a top road speed of 65 Km/hr and a maximum road range of 500 Km.
- (f) Gun - Max range - 18 Km (with normal ammunition).  
22 Km (with base bleed).  
27 Km (with Rocket assisted Projectile).
- (g) Elevation - 0 degree to +70 degree.
- (h) Max rate of fire - 6 to 8 rounds per minute.

7. The gun is a Chinese copy of the Russian D-30 howitzer and besides the QJC-88 12.7 x 108 mm heavy machine gun mounted on the turret roof, there are two triple banks of 76 mm smoke grenade dischargers on either side of the turret.



8. This four-wheeled self-propelled howitzer recently conducted its first live-fire target practice deep in the Karakorum Mountains at an

altitude of 4,500 meters in May 2020. The new 122mm howitzer is more mobile and better suited for air transport via tactical cargo planes like the Y-9.

<http://www.ausairpower.net/APA-PLA-AFV.html#mozTocId431043>

[https://www.defenseworld.net/news/27632/Chinese\\_PLA\\_Tests\\_New\\_122mm\\_Light\\_wheeled\\_Howitzer\\_Anti\\_tank\\_weapon\\_in\\_Himalayas#.YLSOiTYzZdg](https://www.defenseworld.net/news/27632/Chinese_PLA_Tests_New_122mm_Light_wheeled_Howitzer_Anti_tank_weapon_in_Himalayas#.YLSOiTYzZdg)

## **SPACE COOPERATION – INTERNATIONAL LUNAR SPACE STATION**

### **SPACE**

9. **China and Russia plan to build a lunar research station together.**<sup>1</sup> China National Space Administration (CNSA) and Roscosmos, Russia's federal space agency have signed a memorandum of understanding In March this year for the construction of a moon outpost called the International Lunar Research Station (ILRS).

10. Eventually, ILRS would be a scientific experiment base with the capability for long-term autonomous operation. It would be either built on the lunar surface or in the lunar orbit which will facilitate multi-disciplinary and multi-objective scientific research activities such as lunar exploration and utilization, lunar-based observation and basic scientific experiments.

11. As per the Chinese official statement, ILRS would be for a scientific research exchange, with aim to promote exploration and use of outer space for peaceful purposes. It is also intended to open the programme to other interested countries and international partners. The time line of the programme however, has not been announced yet.

12. Chinese progress in space has become cause of concern for NASA, US which is working on the Artemis programme. It relates to carrying out human moon landing by 2024 and eventually US wants to maintain sustained human presence on the moon by end of the decade. Artemis is joint multinational programme. Though NASA disclosed the programme in May this year, actually accord has been signed on 13 October 2020 by the space agencies of eight countries: the United States, Australia, Canada, Japan, Luxembourg, Italy, the United Kingdom, and the United Arab Emirates to cooperate in the venture. Recently Brazil too have joined accord. The accord is claimed to be in conformity with Outer Space Treaty (OST) which prohibits claiming

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<sup>1</sup><https://www.space.com/russia-china-moon-research-station-agreement>

sovereignty on the moon or other celestial bodies but, it does not prohibit the mining and selling of resources.

13. Though Chinese and Russian MoU, and US Artemis accord do not clearly state, but in time to come the ownership of moon surface and its resources and subsequently on other celestial bodies could emerge as the cause of acrimony between the competing nations.

## **RADAR TECHNOLOGY – ADVANCES BY CHINA**

### **CHINA MILITARY RADARS**

14. **Advancements in Military Radars in China.** The hardware on display at the three-day World Radar Expo in the eastern Chinese city of Nanjing, recently, included the long-range SLC-7, JY-26 and YLC-8E systems and has put the spotlight on its advanced radars, highlighting improvements in its ability to track US stealth aircraft<sup>2</sup>.

15. China is developing even more advanced systems such as metric wave, quantum and laser radars to further improve Chinese military's tracking capabilities.

16. The SLC-7, developed by the Nanjing Research Institute of Electronics Technology, is a long-range surveillance radar that can detect and track multiple targets at the same time, withstand saturation attacks, adapt to jamming, and rapidly identify targets, according to the *Global Times*. The JY-26 is called the 'F-22 killer' and can also identify and track other stealth objects like the B-2 bomber and F-35 stealth fighter aircraft. The YLC-8E can detect and track aircraft more than 500km away as well as missile threats up to 700 km. The *Global Times* reported that the three systems were only a small portion of China's anti-stealth radar family.

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<sup>2</sup>Kristin Huang, the Chinese advanced radars taking on stealth aircraft, *South China Morning Post*, 23 April 2021, <https://www.scmp.com/news/china/military/article/3130844/chinese-advanced-radars-taking-stealth-aircraft>, 02 June 2021.



(China is developing a range of radar systems to better detect stealth aircraft. Photo: Weibo)

17. The expo, which ended on 24 April 2021, showcased both military and civilian equipment for aerospace, aviation, shipping and detection. Quite a few most advanced Chinese radars were also displayed in the 9th World Radar Expo at Nanjing, China, from April 22 to 24, including KLJ-7A fire control radar carried by fighter aircraft, SLC-2E artillery nemesis, SLC-7 three-dimensional early warning radar, YLC-8E anti-stealth early warning radar, YLC-18 low altitude defense radar, YLC-48 portable multi-functional reconnaissance radar nicknamed drone terminator, etc<sup>3</sup>.

18. Among them, KLJ-7A is China's first active phase array fire control radar for fighter aircraft to be sold in world market. It is characterized by high degree of freedom, broad band-width and strong anti-jamming capability. It can easily generate various wave shapes to deal with different kinds of target, can, in addition, simultaneously counter source of interference at various directions. It is at par with similar best products in the world in view of its technological advancements. Its speed of overall response has been greatly increased due to the use of optical fiber for data transmission so that its capability to monitor far-away targets is twice better than traditional radar. KLJ-7A radar can track and guide missiles to hit quite a few targets at the same time. It has thus laid sound foundation for fighter aircraft to detect and destroy targets swiftly. SLC-2E radar is an S-band weapon position radar using entirely solid active phase array system, highly reliable, adaptable to environment and mobile and able to operate 24-hour in whatever weather. It can detect the position of not only mortars but also heavy artillery and rocket

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<sup>3</sup> Chankaiyee2, China's Brilliant Radars Displayed in Recent Nanjing Expo, *Tiananmen's Tremendous Achievements*, 28 April 2021, <https://tiananmenstremendousachievements.wordpress.com/>. 02 June 2021

artillery with changing high-speed trajectory. In addition, it can detect the position of armed helicopters to better satisfy artillery's operational needs.

19. Way back in 2016 also similar claims were made where, China showed off two anti-stealth radars at Zhuhai. The first, the JY-27A 3-D long-range surveillance/guidance radar, a Very High Frequency (VHF) radar that, according to Shephard Media, was the Chinese military's first active-phased array radar. The radar was claimed to have pick up on hostile stealth fighters at ranges of up to 500km. Another anti-stealth radar on display at Zhuhai was the JY-26 Skywatcher-U. This radar worked in a broader bandwidth, in VHF and UHF bands. According to Shephard Media, it had a range of 500 km and could track up to 500 targets at once<sup>4</sup>.

20. Thus Chinese advanced military radars are likely to be capable of providing a good early warning to its air defence system and enable offensive action through multiple platforms quickly. Much of the technical information provided on these systems is from the Chinese sources which are known to have made tall claims in the past. Therefore, a continuous watch is required to be kept on these new technology weapon systems for exploiting their weakness when required.

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<sup>4</sup>Kyle Mizokami, China Claims Its New Anti-Stealth Radars Can Detect the F-22, *Popular Mechanics*, 11Nov 2016  
<https://www.popularmechanics.com/military/weapons/a23846/china-anti-stealth-radars-detect-f-22/>.  
02 June 2021.