

Laser Advancements of Next-Generation Compact Environments (LANCE) weapon

July 13, 2022

In news - US aviation company Lockheed Martin has reportedly delivered 'LANCE weapon', a compact directed energy weapon to the Air Force Research Laboratory of the US Air Force (USAF) for operational testing.

What is LANCE weapon?

- LANCE is **the smallest, lightest high energy laser of its power class** that Lockheed Martin has built to date.
- While the energy weapon has been developed by Lockheed Martin, the beam control system has been developed by Northrop Grumman, and the pod which will be mounted on an aircraft has been developed by Boeing.
- **It is one-sixth the size of the other laser energy systems** being developed by the company.
- LANCE is part of the US Air Force's efforts to equip fighter jets with compact laser weapons capable of taking down anti-aircraft missiles.
- It was developed under Self-protect High Energy Laser Demonstrator (SHiELD) programme.
- The development is significant as it is an acknowledgement that **efforts to reduce the size of the laser energy weapon** have been successful, and it is now ready to be tested after being mounted on an aircraft.
- The fact that the **size of the energy weapon has been reduced to that of a pod** which can be mounted on a fighter aircraft, or any aircraft for that matter.
- **This laser weapon will give the USAF the capability of shooting down incoming anti-aircraft missiles**, thus giving it a crucial edge over its adversaries.

- While LANCE has been reduced in size for operational use on aircraft, the system can definitely be put to use on a variety of platforms on land and at sea.
- **At present, LANCE has been manufactured for a defensive role.**
- However, this research could be furthered to develop an offensive weapon, **one that could not only shoot down aircraft and drones, but also be mounted atop ground- and sea-based mobile platforms for offensive roles.**

Some of the countries actively pursuing development of laser energy weapons-

- Apart from the US, several other countries have robust laser energy weapon development programmes. **This includes China, Russia, Israel, Germany, France and India.**
- **Israel recently tested** its laser weapon to shoot down a drone from the ground.
- **Russia**, meanwhile, said **it had tested a laser weapon – Zadira** – in Ukraine recently, a claim dismissed by western powers.
- While **Chinese Navy ships** have been photographed with energy weapons onboard, the US Navy officially tested one such system some years back.
- **India, too, is developing a directed energy weapon named DURGA II**, which stands for Directed Unrestricted Ray-Gun Array. **It is said to be a light energy weapon of 100 kilowatt capacity.**