

Infantry Squad Vehicle (ISV)

The Infantry Squad Vehicle (ISV) is operationally effective for employment as a troop carrier and can accomplish air assault missions in a permissive environment. The ISV is not operationally effective for employment in combat and engagement, security cooperation and deterrence (ESD) missions against a near-peer threat. The ISV is not operationally suitable because of poor developmental test reliability and deficiencies in training, maintenance, safety, and human system integration identified in IOT&E. The program has a corrective action plan to address failures identified in testing that should be verified prior to the full-rate production decision scheduled for May 2022.

An ISV-equipped unit is susceptible to enemy threats and actions but the ISV does not have a survivability requirement to protect the unit against kinetic threats defined in the Validated Online Lifecycle Threat report.



System Description

The ISV is designed to provide mobility on the battlefield for a nine-soldier light infantry squad with their associated equipment. The vehicle is required to be external and internal transportable by a CH-47F helicopter and airdropped by C-17 and C-130 aircraft. Airborne and air assault Brigade Combat Teams intend to employ the ISV during austere and offset entry operations to provide rapid cross-country mobility to conduct initial entry and offensive operations. Infantry Brigade Combat Teams require the ISV to conduct engagement, security, deterrence, and decisive action missions.

Program

The ISV is an Acquisition Category III program. The full-rate production decision is planned for May 2022 intended to support program objective of 649 vehicles.

Major Contractor

General Motors Defense – Detroit, Michigan.

Test Adequacy

DOT&E approved the ISV IOT&E operational test plan in July 2021. The Army Test and Evaluation Command conducted the IOT&E in August 2021 at Fort Bragg, North Carolina in accordance with the DOT&E-approved test plan.

The test unit did not complete 2 of 10 missions because the unit deployed to support a real world mission. Pilot test missions supplemented the evaluation. The Army will conduct an Airborne IOT&E Phase II operational test in 2QFY22.

Performance

Effectiveness

The ISV is operationally effective as a troop carrier for tactical transport. During IOT&E, a rifle company successfully employed ISVs over wooded and cross-country terrain to maneuver to their objectives and complete missions. The ISV is quiet, agile, and provides an enhanced off-road mobility capability for a nine-man infantry squad with their personal weapons and equipment. The ISV allows an infantry unit to move over extended distances rapidly, reducing fatigue.

Infantry Brigade Combat Teams equipped with the ISV demonstrated the ability to accomplish air assault missions in permissive environments. ISVs can be internally transported by CH-47F, and sling loaded with the UH-60 and CH-47F helicopters. The ISV is easy to rig, derig, and can rapidly move soldiers and equipment off the landing zone to support follow-on objectives. The ISV does not have ballistic armor, a major consideration for employment into non-secure locations, rendering the unit susceptible to threats at landing zones.

The ISV is not operationally effective for employment in combat and ESD missions against a near-peer threat, as identified in the Validated Online Lifecycle Threat report. The vehicle lacks the capability to deliver effective fires, provide reliable communication, and force protection. The rifle company equipped with the ISVs did not successfully avoid enemy detection, ambushes, and engagements during a majority of their missions. In order to traverse cross country routes and wooded terrain, the unit was

forced to reduce their speed, resulting in slowed movement, or maneuvered on improved routes, negating any element of surprise. During missions, the unit experienced numerous casualties, delaying mission accomplishment and degrading its combat power for follow-on missions. The unit concealed their ISVs and drivers close to the objective and dismounted eight soldiers per vehicle to accomplish missions before recovering their ISVs. This action reduced their combat force, exposed the ISVs and drivers to opposing force attacks, and increased the risk of additional combat losses.

During missions, personal weapons were not easily accessible on the move, degrading the ability of the squad to quickly react to enemy actions and ambushes. While the ISV can mount a swing arm for an M240 machine gun, the ability for the soldier to efficiently employ the weapon on the move was a challenge because the soldier's field of fire was hindered by trees, foliage, and other obstructions when extending the swing mount. Protracting the swing mount also interfered with seated soldier egress from vehicle.

Communication between soldiers, squad leaders, and platoon leader were intermittent and not reliable on the move, degrading their ability to gain and maintain situational awareness at extended range mission between 62 to 300 miles. The ISV does not have a requirement for a mounted communication capability, so each platoon depended on their manpack and leader radios.

The ISV lacks the capability to carry the required mission equipment, supplies, and water for a unit to sustain itself within a 72-hour period. Units operating for longer durations will need to conduct mission planning, cross level-equipment across the unit, or may require additional ISVs to sustain operations.

Suitability

The ISV is not operationally suitable because of poor developmental test reliability and deficiencies in training, maintenance, safety, and human system integration identified in IOT&E. In developmental testing to date, the majority of failures were exposed in the rugged, hilly terrain of Yuma Proving Ground, Arizona. The program terminated the reliability testing because the ISV demonstrated Mean Miles Between Operational Mission Failure (MMBOMF)

was far below its required 1,200 MMBOMF. The major failures included loss of steering capability, cracked and bent seat frames, and engine cracks and overheating. The ISV was more reliable in the less challenging flat, wooded, terrain of Fort Bragg, North Carolina. The program has developed a corrective action plan to address failures in testing and verify fixes in FY22.

While ISV operator training was sufficient for the drivers to operate the vehicle, ISV maintainer training was limited due to incomplete maintenance manuals and training material. The program plans to provide contractor logistics support and improve maintainer manuals and training prior to transitioning to organic support in FY23. Because of the open design and handling characteristics of the ISV, additional training time is needed for drivers to operate the vehicle in a variety of terrain conditions, as well as night driving, and to prevent roll-overs. Unit leaders assessed collective training as lacking tactics, techniques, and procedures to employ the ISV in their combat formations. While soldiers performed diagnostic and maintenance tasks within their capability, most maintenance was performed by contractor field service representatives.

The ability of the soldier to egress from center and rear seated positions in the ISV was hindered by the limited space and interference from stored mission equipment during missions. The seating positions for the soldiers are cramped and uncomfortable. During

IOT&E, over 60 percent of the soldiers expressed dissatisfaction with the ISV ride comfort. The vehicle rear seats contributed to lower back discomfort. When the company used the ISVs in wooded terrain, the ISV open design exposed soldiers to potential injuries from trees, branches, sticks, and other debris.

Survivability

An ISV-equipped unit is susceptible to enemy threats and actions. The ISV has some design features to reduce units' susceptibility to enemy detection, such as speed and small visual and aural signatures. The ISV does not have a survivability requirement to protect the unit against kinetic threats defined in the Validated Online Lifecycle Threat report. Units employing the ISV may need to consider integrating organic reconnaissance and firepower assets to enhance their survivability to threats.

The ISV is vulnerable in a cyber-contested environment through the commercial supply chain impacting the ability of a unit equipped with the ISV to accomplish its mission.

Recommendation

1. The Army should develop a plan to address recommendations identified in the ISV IOT&E report published in FY22 prior to the ISV full-rate production decision scheduled for May 2022.