

## Aircraft Type Description

A remote controlled helicopter from Bergen R/C, the Intrepid Gasser EB, has been selected as the platform for the flight test program ( <http://bergenrc.com/GasEB.php> ). The Bergen Intrepid Gasser EB, shown in Figure 1, is capable of supporting a 12 pound payload with a flight time of 25 minutes on the standard 16 oz gas tank. The helicopter is equipped with a Zenoah G-26 single-cylinder, two-stroke engine that is fueled by a gas / oil mixture. The primary control works over a 2.4 GHz radio link and provides direct pilot control of the aircraft throttle, collective pitch (main rotor pitch), roll cyclic (aileron), pitch cyclic (elevator), and yaw (tail rotor). An autopilot, manufactured by DJI Innovations, has also been integrated into the helicopter system. This autopilot provides enhanced functionality such as a stationary hover mode including attitude hold, the ability to fly through a set of prescribed waypoints, and the option to switch in and out of full manual mode at any time.



**Figure 1: Bergen Intrepid Gasser EB Helicopter.**

Key characteristics of the Bergen Intrepid Gasser EB helicopter are summarized in Table 1. It should be noted that, although the maximum cruise speed is 55 mph, the autopilot can only accommodate a maximum speed of 27 mph. This maximum speed is still much higher than will be required for this flight test program.

**Table 1: Bergen Helicopter Specifications**

Make / Model	Bergen Intrepid Gasser EB
Main Rotor Radius	800 mm (2.6 ft)
Tail Rotor Radius	95 mm (0.3 ft)
Overall Length	4.5 ft
Overall Height	1.5 ft
Maximum Flying Weight	25 lbs
Payload Capacity	12 lbs
Fuel Capacity / Endurance	16 oz / 20 min.
Cruise Speed	0 – 55 mph
Takeoff / Landing	VTOL