



## AirTrailer Frequently Asked Questions

### Introduction:

AirTrailer - a Towed Cargo Autogyro with the smallest model having a half (1/2) ton useful load.

### Specifications:

- 1,000 lbs (Half Ton) Cargo (available in models up to 40 ton)
- Large Cargo Volume (approximately 194 cubic ft)
- Loads up to 12 foot Long Cargo
- Skid, Wheeled or Float Water Landing Gear
- Towed by Aircraft with 250 to 350 hp
- Accurate Helo-Like Delivery
- Durable Airframe and Composite Fuselage
- Near-Disposable Wooden Fuselage (optional)
- High Use Steel Frame Fuselage
- Rotor Head & Blades are Removable for Easy Return on Light Aircraft or Ground Transport

### Environmental benefits of using an AirTrailer?

- Reduce your Aircraft's Carbon Footprint!
- AirTrailer is a GREEN Product with a large "Carbon **Negative** Footprint".
- The AirTrailer can double your cargo capacity over the rotor wing fleet and allow you to use a smaller aircraft to carry the same outsized and oversized loads.
- Increased usable load by as much as 100%
- Increased usable volume by 75% to 200%

*NOTE 1:* Weight and Cargo Volumes are variable based on the tow aircraft performance, along with temperature and altitude. Contact Heliplane LLC for a specific performance capability review.

### What are the typical Flight Characteristics and Capabilities?

	<u>Cessna 182</u>	<u>Caravan 650</u>	<u>Casa 212</u>
Cargo Weight	1000lb/455kg	2000lb/908kg	5000lb/2,270kg
Cargo Area	128 cubic ft	300 cubic ft	750 cubic ft
Cargo area	8'	15'	20'
Useful Loads	1000lb	2000lb	5000lb
Cubic feet (approximate)	192	192 to 256	1086
Towing Aircraft	Cessna 172 Super Cub AG Truck	Air Tractor AG Cat Caravan	Casa 212 Air Tractor Blackhawk Helo
HP Requirements	180 - 250hp	300 - 600hp	1200 - 2200hp
Max Airspeed	80kts	115kts	130kts

- The AirTrailer takes off like a banner at approximately 20kts
- The AirTrailer follows the Tow Aircraft like a banner
- Like a banner, the AirTrailer is released with helicopter-like precision delivery
- The AirTrailer normally lands and comes to a complete stop in less than 500' from the release point

## What is the expected cruise flight air speed?

Tow Speed depends on the cargo weight and performance of the tow aircraft with a normal cruise speed between 85 and 100kts

## Who would utilize the AirTrailer?

### *Commercial/Residential Use...*

- **REMOTE AREAS: i.e...Alaska-Canada-Philippines-South America**
  - Hunting-Fishing Lodges, Including Delivery of Fishing Boats!
  - Oil & Gas Exploration and Pipeline Support
  - Oil Rig Platform Re-Supply
  - Mail and Parcel Delivery (ex...Philippines has 10,000 islands & 90 million people)
  - Building and Sanitation Supplies

### *Military/Government Use...*

- **HOMELAND SECURITY DISASTER RELIEF**
  - Emergency Medical/Survival Supplies Delivery
  - Rapid Food Distribution
  - Water Bomber for Forest Fires
  - Food Supply to Stranded Livestock
- **MILITARY RESUPPLY**
  - Avoids IEDs (Improvised Explosive Devices) & Ground Convoy Ambushes
  - AirTrailer Towed by UH-60 Avoids Brown Out & Carries 50% More Cargo
  - Rapid FARP (Forward Area Refuel and Rearm Point) Insertion & Setup
  - Enables Scout-Attack Helicopters to Deliver Cargo
  - Reduces IED Exposure, Helo-Like Cargo Delivery via Low Cost Fixed Wing
  - Accurate UAS (Unmanned Aircraft System) Cargo Operations utilizing an Automated Fixed Wing Aircraft i.e. Caravan
  - High altitude release has an approximate Glide Scope of 4 to 1
  - Precision landing with predetermined landing site, or can be guided by an airborne or ground based operator

## Reasons to use the AirTrailer are...

### *More Cargo Weight & Space, Greater Accuracy & Lower Cost Over Para-Drop*

- **MORE CARGO:** For a given towing aircraft gross weight, the added lift of gliders results in about 50% or more payload than what the aircraft could have carried alone.
- **BETTER OUTSIZE CARGO CAPACITY:** Most aircraft cargo areas have limited space. The Air Trailer enables large volume to facilitate such items as parcel-mail delivery where cubic footage is more important than cargo weight
- **GREATER ACCURACY THAN PARA-DROP:** Parachuting cargo into remote areas requires at least 500-700' altitude above the ground to allow the chute to open. The Air Trailer is already "flying" and can be delivered within as little as 50' above ground altitude - enabling far greater accuracy
- **LOWER COST THAN PARA-DROP:** Parachuting cargo requires large specialized aircraft with ramps with costly rigger support and also utilizes costly "dumb" parachutes and expensive

cargo bags (i.e. A-22). The AirTrailer costs less than a comparable cargo chute, needs no Rigger support and can deliver more cargo, per sortie, than a comparable cargo aircraft can para-drop.

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- **LEVERAGES LOW COST FIXED WING AIRCRAFT:** The AirTrailer enables the use of low cost utility fixed wing aircraft, such as agriculture spraying aircraft, to carry large volume, heavy weight cargo and deliver to remote areas with near helicopter-like precision at less than 20% the cost of helo delivered cargo

#### **Additional Reasons to use the AirTrailer in Rescue/Disaster Relief, Commercial or Military Applications:**

- Avoids slow and/or hazardous ground transport
- Low cost and sustainable helo-like delivery
- Aerial relief to “no road” disaster areas
- Fixed wing UAS capable, i.e... low cost towing with fixed wing automation to be UAS for use in Military applications
- Low cost fixed wing = Reduced helo fleet use
- Use with automated fixed wing i.e. Caravan = low risk unmanned cargo operations

#### **COST SAVINGS EXAMPLE**

##### **Per Mission Cost Comparison on:**

- **100 nm Mission**
- **Near Vertical Insertion of 1,000lb Cargo**
- **In a 12' X 4' X 4' Box**

##### **A) Using a Bell Jet Ranger**

- \$750 per Hour
- Single Pilot @ \$50/hr
- 70kts w/Sling load
- Payload 500lb
- Total cost of \$5000
- The Bell Jet Ranger carrying internal 500 pounds would need to make two trips and could not come close to accommodating a 12 ft box dimension! It could sling load a 12' box weighing approximately 500lbs but would still require two trips. Each trip would cost about \$2,250 for the aircraft and \$150 for the pilot, resulting in a total cost of about \$5,000.

##### **B) Using a Casa 212-200**

- \$1,500 per hour
- Crew of 3 @ \$150/hr
- 150kts
- Payload 1,000lb
- 12 ft boxes para-dropped
- Rigger cost \$500 per box
- The Casa 212 Light Cargo Plane could carry about 6,000lbs of cargo for this distance
- Its cargo bay can only carry one (1) 12' box to para-drop
- Total cost of \$5,000
- The aircraft would need to make one trip which would take approximately 1 hour and 30 minutes to complete (depending on weather conditions), resulting in a cost of \$2,250 for the aircraft and \$225 for the pilots & the load master for a cost of about \$5,000.
- If the chute is not recovered, then \$8,500

##### **C) Using an AirTrailer & Cessna 182**

- \$100 per Hour

- One Pilot @ \$50/hr
- 70kts Towing Air Trailer
- Payload 1,000lbs  
(AirTrailer and Cessna 182 Continued)

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- Carrying one (1) 12' Box
- Total Cost \$500
- The AirTrailer half ton towed by a Cessna 182 could carry 1,000lbs of cargo in a 12' box.
- The aircraft would take approximately 3 hours to complete the trip (depending on weather conditions) at a cost of approximately \$300 in addition to \$150 for the pilot for a total cost of approximately \$500.
- The AirTrailer is designed, like the parachute kit, to be recoverable and the cost is about equal.
- If the AirTrailer is not recovered, then \$15,000 or less based on the components which are recovered.

## Summary

The near helicopter landing performance of an Autogyro, along with its extremely low cost and simplicity, enables Autogyro Towed Gliders (the AirTrailer) to significantly lower the cost of precision delivery air cargo; therefore supporting our Military, Homeland Security, Disaster Relief & Commercial needs.

Please call if you have further questions regarding your specific application and how the AirTrailer may fulfill that need. The AirTrailer can be tailored (within certain parameters) to meet virtually any application.

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