

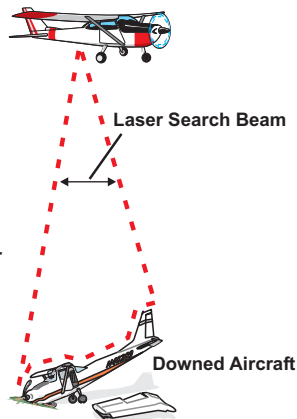
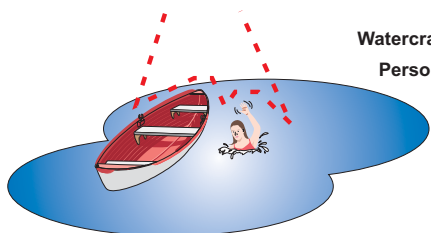
# L-SAR Laser Search and Rescue

US Patent 5,793,034

## REVOLUTIONARY, NEW AIRBORNE SEARCH TECHNIQUE

DAY OR NIGHT

- Downed Aircraft and Airmen
- Marine Vessels
- Personal Floatation Devices and Life Boats
- Lost or Injured Persons



## RETROREFLECTOR MARKINGS

The L-SAR system detects specially developed retroreflector markers on aircraft, marine craft, personal floatation devices (PFD's) and clothing when illuminated by the laser search beam. The retroreflectors are uniquely coded to enhance the ability of the L-SAR system to distinguish between retroreflectors and ordinary glint or other reflectors.

### AIRCRAFT MARKINGS

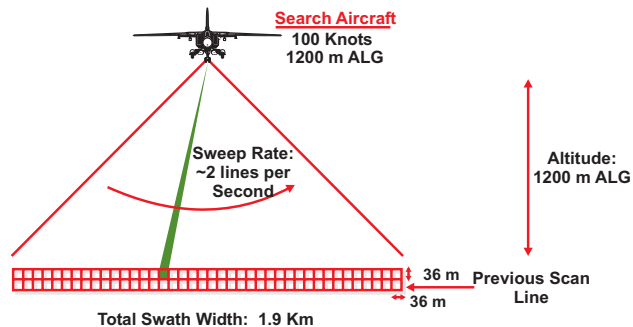


### MARINE MARKINGS



## TYPICAL SEARCH PATTERN

A 2° x 2° laser beam is stepped across the aircraft track over an 80° wide field of view. A CCD camera images each step for automatic detection of retroreflector markers. GPS integrated with the L-SAR system establishes the ground position of each detection.



Imaging Group

Environmental  
Remote Sensing  
Technology

# L-SAR Laser Search and Rescue



## TEST RESULTS



Ground View of Retroreflector Patches on Aircraft Fuselage in Forest



Aerial View of Boat, Raft, and PFD in Open Water



L-SAR Detection of Boat, Raft, and PFD in Open Water\*

\* PFD marker size was 3" x 8"

The Imaging Group conducted extremely successful test flights over the Saginaw Forest, Ann Arbor, Michigan, and over open water in Lake St. Clair on October 1, 1997. Testing was actively supported and witnessed by CAP, USCG, and USCG Auxiliary.

Saginaw Forest, 10/97 Unprocessed

Saginaw Forest, 10/97 Processed



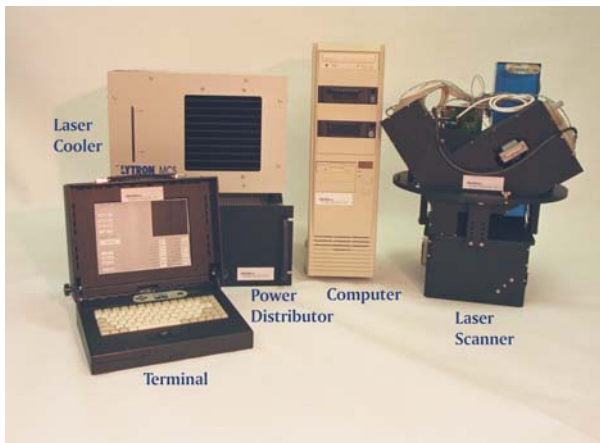
Normal Airborne Visual Appearance



L-SAR Detection of Aircraft Fuselage Retroreflector Patches

## L-SAR HARDWARE

Proof of Concept Prototype, developed under Contract No. NAS5-32710 from NASA Goddard Search & Rescue Program Office. Product validation was confirmed through flight tests beginning 1 October 1997.



Altitude: 3,000 ft.  
 Ground Speed: 100 Kts  
 Coverage Area: 48 sq. mi/hr  
 Size Scanner: 15" W x 20" H x 12" D  
 Electronics: 19" W x 14" H x 19" D  
 Weight: 176 lbs.  
 Power: 28 V @ 1000W

## DEVELOPMENT CONFIGURATIONS

### L-SAR LR (Long Range) - High Speed

SEARCH AND RESCUE AIRCRAFT



Altitude: 4,000 ft.  
 Ground Speed: 200 to 300 Kts  
 Coverage Area: 280 to 420 sq. mi/hr  
 Size Scanner: 42"L x 16"D  
 Electronics: 19" W x 14"H x 19"D  
 Weight: 120 lbs.  
 Power: 28 V @ 800W

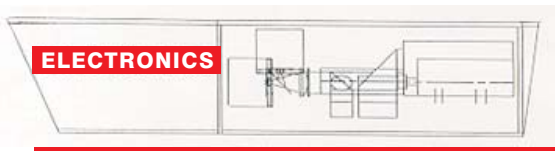
### L-SAR SR (Short Range) - Low Speed

LIGHT AIRCRAFT AND HELICOPTERS



Altitude: 4,000 ft.  
 Ground Speed: 120 Kts  
 Coverage Area: 140 sq. mi/hr  
 Size Scanner: 14"W x 13"H x 26"L  
 Electronics: 14"W x 11"H x 16"L  
 Weight: 100 lbs.  
 Power: 12 or 28 V @ 700W

Specifications subject to change. SenSyTech reserves the right to substitute components of equal or superior performance at any time without notice.



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