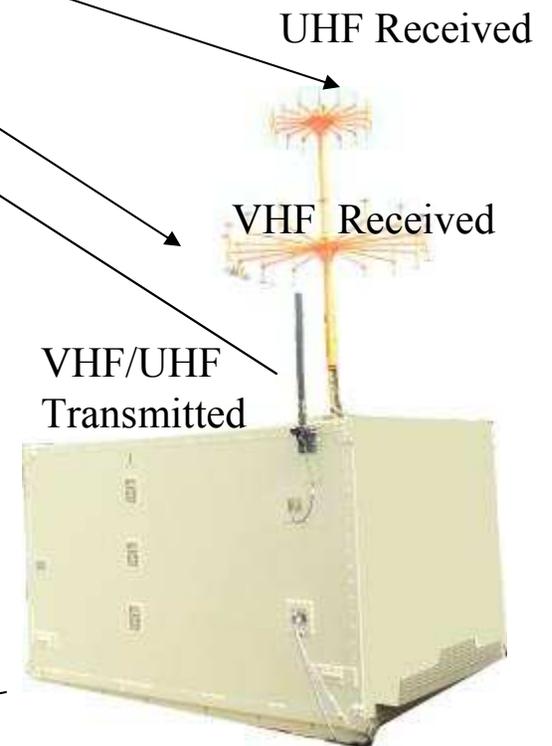


The Servo Model 2100 (7070M) UHF/VHF Radio Direction Finder System





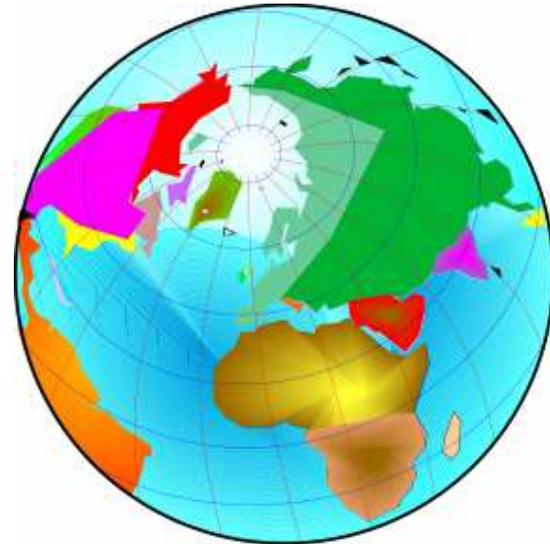
The Servo Model 2100 Radio Direction Finder is a completely passive system that is capable of determining the direction of moving aircraft by voice transmissions over the full range of commercial (VHF) and military (UHF) frequencies.



Servo Radio Direction Finders are world renowned for their dependability and ruggedness.

The FAA first commissioned the Servo DF system in 1962. Well over 400 systems were delivered to the FAA, many are still in operation.

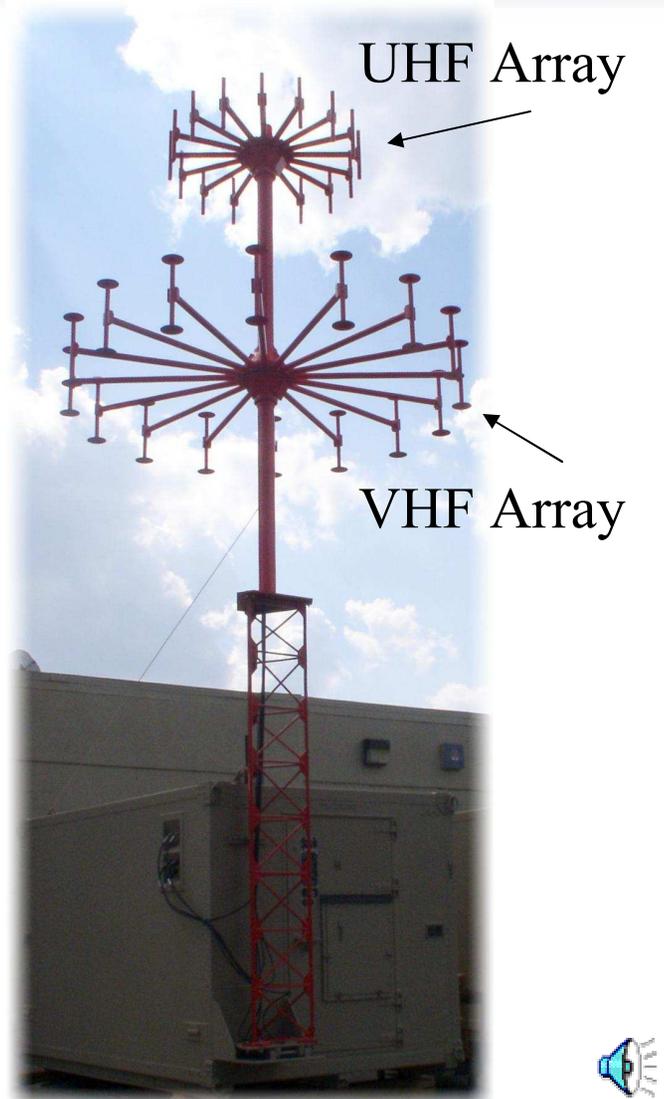
Today Servo DF systems are in operation in over 35 Countries around the world and total more than 750 DF systems.



The Servo patented antenna array is at the heart of the Servo DF System. UHF is the top array, VHF is the lower array.

This unique fixed antenna system utilizes a Quasi-Doppler concept which electronically simulates the effect of a revolving single dipole antenna around the circumference of a circle. The sixteen vertically polarized dipoles are electrically commutated to phase modulate the individually received signals on a sampled data basis. This phase modulation produces a DF sine wave which has a phase relationship proportional to the angle of arrival of the DF signal. System range is over 150 miles in any direction depending upon site location.

No other RDF system can compare to Servo's offering of capabilities and applications.



The Servo DF System is extremely versatile. It can be configured for either VHF, UHF or both.

It can be operated from the antenna site or from a remote location by connecting the Receiver Processors to the PC based remote display control unit via a 232/422 communication protocol or by conventional 4 wire telephone line. Internal modems for both voice and data are provided to establish the communications link with a PC based remote display control unit.

The Servo Model 2100 is simple to operate and requires minimal maintenance.



On Site Receiver/Bearing Processor



PC Remote Display Controller



Shelterized DF Systems, Servo Model 2100 7070M, are self contained and fully equipped with diesel generators, battery backup, environmental controls, PC voice loggers, radio communication systems and uninterruptible power supplies (UPS).

They can be used as a fixed installation or easily and quickly transported to remote locations either by truck or aircraft.



Servo DF Shelter systems can be put in operation by 2 or 3 people in a matter of just a few hours.

The shelter has a unique winch system specifically designed for simplified antenna erection. It provides the ability to safely assemble the antenna on the ground and erect the antenna using the winch and cable.



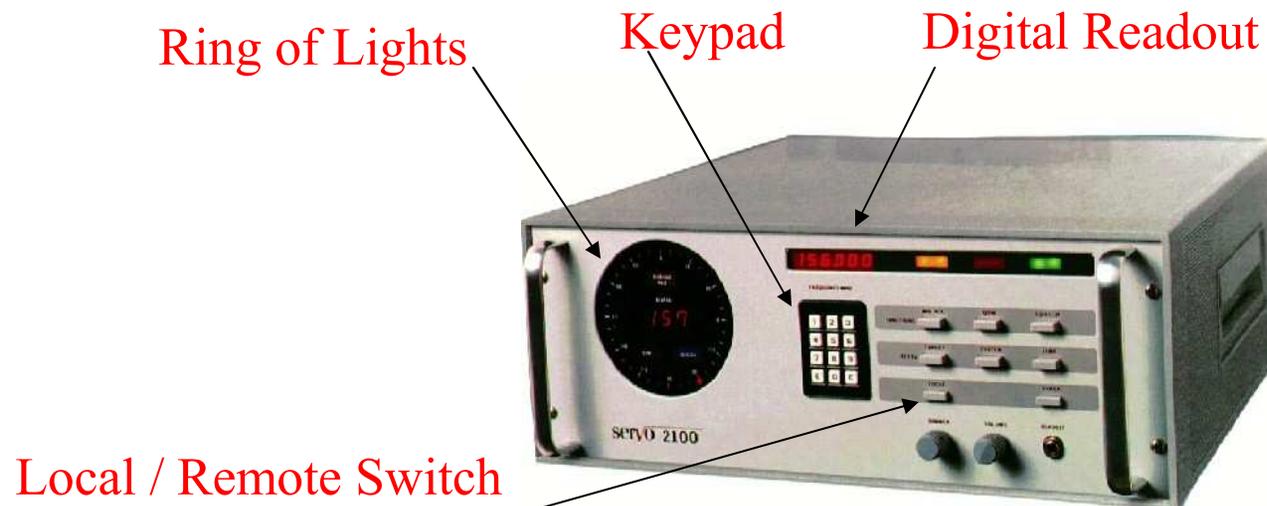


All DF equipment is assembled in equipment cabinets and is fully wired in the shelter. Antenna components, antenna subassemblies, tower, cables, ground rod, lightning rod and dipole arms are stored inside the shelter for ease of

The Receiver/Bearing Processor is the main RF signal conditioning and digital processing unit of the DF System. One each is required for either VHF or UHF Reception.

Aircraft direction information is displayed on both the ring of lights and the digital readout. Desired frequencies input is done on a keypad.

The front panel has a Local/Remote switch that allows for remote operation of the unit. The system may also be used to receive emergency locator transmissions (ELT).



The PC Based Remote Display Controller is connected to the on site Receiver/Bearing Processors both VHF and UHF via 232/422 protocol or a 4 wire telephone line. Modems for voice & data communications are internal in all units.

Bearing, frequency and other system status and test information are displayed at both the antenna site and on the PC Based Remote Display Controller.

Both UHF and VHF are displayed and controlled on the PC remotely.



Target Positioning

The DF2100 System when used with DF2100P software can be used to determine the geographical position of the vessel or aircraft superimposed on the map.

The DF2100P software package also allows the user to fully control DF2100 receiver, receive voice and data in a remote location via the phone lines or the Internet.

In order to use this application at least 2 DF2100 Systems are required (3 systems are recommended).

The map used should be in a Geo Tiff format.

DF2100P Target Position derived from 3 DF sites bearing information

The screenshot displays the SERVO DF2100P software interface. The main window shows a map of Egypt with a target position marked by a blue dot in the Gulf of Suez region. Three bearing lines (red, green, and blue) radiate from the target position to three different DF sites. The interface includes a control panel on the right with the following settings:

- RF: 121.500 MHz
- Lat: 28:51:4.25 N
- Lon: 33:0:40.64 E
- Average Position Samples: 50
- Rx1: 104 deg.
- Rx2: 075 deg.
- Rx3: 001 deg.
- distance: 87.05 km
- Position Area: width 16.08 km, height 16.08 km
- Track Samples: 50
- within: 5.0 km

The bottom control panel includes sections for Receiver Status, Receiver Control, and individual receiver settings (Rx1, Rx2, Rx3). The Receiver Status section shows Rx1 is active (QDR, Antenna OK), Rx2 is inactive (Signal OK, Rx CTL), and Rx3 is inactive (Data Valid, Squelch, LO's OK, Test OFF). The Receiver Control section shows Rx1 is set to 12150, Rx2 is Manual, and Rx3 is Manual. The Rx1, Rx2, and Rx3 settings sections show Rx1 is set to USB, Rx2 is set to Network, and Rx3 is set to Network. The Data In, Data Out, Position, Distance, and Audio sections show Rx1, Rx2, and Rx3 are all active. The Voice Recorder section shows Rx1, Rx2, and Rx3 are all active. A 'Get audio file' button is located at the bottom right of the control panel.

Scale: 0.5 | 3438116.900, 3421735.914 / 29° 28' 20.479"N, 30° 53' 6.4...



Servo Personnel provide detailed training for customers at the Servo facility on Long Island, New York.

On-site technical assistance is provided for the initial system installation and flight check of the Servo Model 2100 DF System.



Depot Level Maintenance can be performed by the customer with proper spares and training which can be provided by Servo.

Servo also provides repair services at our Long Island facility for major work.

The Model 2100 equipment supplied by Servo is guaranteed to be supportable for a minimum of fifteen years.



In Summary:

Servo DF Systems have proven their ruggedness and dependability over the last 45 Years. They have performed from the frigid arctic to the heat of the worlds deserts.

They are completely passive devices that provide 360 degree coverage for both VHF and UHF frequencies over a range of more than 150 miles.

The Servo DF provides both on-site and remote control through the use of a PC Based Remote Display and Control connected via internal modems for voice and data.

Servo can provide training, on site installation support, spare parts and major repair of DF modules to insure your Servo Direction Finder purchase meets all your expectations for many years to come.

