Amateur Radio Communication Antenna
14MHz High Performance Center Loading Mobile Antenna

HF20CL
Fold over whip element structure

Operation instructions
To use the antenna properly, read these instructions thoroughly before using it. Keep this manual carefully at hand for later use.

HF20CL is for amateur use. Please transmit on the amateur bands.

<<Warnings>>
To avoid inviting accidents, please follow the following notices.
1. Nuts and screws can be loosened by vibration during driving. Be sure to check those fastening devices from time to time and retighten if necessary.
2. Strong impact can cause to break the antenna and may invite accidents by falling the element. It is recommended to drive away from those obstacles such as branches.
3. Strong vibrations caused by diesel engines may damage the antenna. It is recommended to install the antenna at the location where least vibrations as possible.
4. Touching the antenna during transmission may cause to electricly. Be sure to confirm to see if there is no one around the antenna if transmission is taking place when the car is parked.
5. Don't drive a car with the whip tilled. Driving the car with the whip tilted may cause serious human accident.
6. To install the antenna, be sure to take those things such as local traffic regulations, and physical length of the car in account, and especially it has to be installed the location where is not easily reachable by people.
7. Adjust the antenna thoroughly on operating frequency before operation. Using unadjusted antenna may cause to damage transceiver.
8. If the thunder seems to rumbling the vicinity, do not touch the antenna and coaxial cable to avoid electrocution by lightning.
9. Select strong enough place to install the antenna to avoid damaging the car body falling the antenna.

Description
1. Center loading type that is high performance is employed in the HF20CL (length: 2.2m mobile antenna).
2. It is easy to adjust the frequency by changing the upper element.
3. Fold over whip element structure eliminates troublesome antenna detachment when the car is parked in your garage. Whip element section of the antenna can be tilted for desired direction by pull the element up and incline for any direction.

Installation location
Since this antenna is designed to install on car body only, VSWR of the antenna may not be lowered when it is installed on the place where has different grounding condition such as on balcony railings.

Parts number
The unit is consisted of the antenna following parts.

- Upper element (M75001)
- Set Screw (M4x4) (M75005)
- Loading coil (M75002)
- Set Screw (M4x4) (M75005)
- Lower element (M75003)
- Set Screw (M4x4) (M75005)
- Fold over section (in matching section)
- Matching section (M75004)

Assembly and Adjustment
1. Set the upper element in the upper part of the loading coil and fasten the set screw temporarily.
2. The element of HF20CL is adjusted to lower frequency of amateur band at initial condition. Please check the resonated frequency with SWR/power meter.
3. Calculate the difference between the resonated frequency and the desired frequency after confirming the resonated frequency. Referring to the below frequency change amount, calculate the element adjustment length. If the frequency is lower than the desired one, cut the element. If the frequency is higher than the desired one, set the element at higher position.

Frequency change amount: Approx. 45 Khz/cm

<<Attention>>
- Do not touch the antenna during transmission to avoid electrocution.
- Since VSWR of an HF antenna varies depending on installation locations, be sure to adjust at the place where the antenna is operated in practice.
- Adjustment has to be take place at the place where is no obstacles or power line, and where does not hinder other cars and pedestrians.
- Due to insufficient earth capacity correct adjustment can not be performed at the place where has vast space under the car such as on a bridge or in the multi-level parking lot.
- To avoid interfering other stations, adjustment has to be performed with least RF power and shortest time as possible.

<<Warning>>
- Don't drive with the antenna turned down; otherwise, fatal accident should happen.
- In case the antenna stretches out from the car body when turned down, detach the antenna otherwise, fatal accident should happen.
- When using the tiltable whip, pay attentions not to pinch your fingers.

VSWR

- Specification
  Frequency: 14MHz (14.0-14.35MHz)
  Max Power Rating: 200W (SSB), 70W (FM)
  Impedance: 50Q
  VSWR: Less than 1.5 (at resonated frequency)
  Length: 2.2m
  Weight: 560g
  Connector: M-J
  Type: 1/4 wave center loading

- Though the product being purchased is manufactured under strict quality control, if damage is caused by transporting, ask your dealer promptly.
- Design and specification of these products will be changed for future improvement without advance notice.