

ANTENNA INSTALLATION

The most important single factor determining optimum transmission is the antenna. The antenna chosen should be selected for each transceiver on the basis of the application involved.

FIXED ANTENNA INSTALLATION

For short range communication, an inexpensive base load type of antenna or spiral whip antenna will be adequate. An antenna of the "ground plane" type will provide greater, more reliable coverage. Both of these types are essentially non-directional and are ideal for applications involving fixed-to-mobile operation.

The directional "beam" type of antenna with ant. rotator may be used to extend the range of the Transceiver and will provide reliable communication over an unusually long range or under adverse weather conditions. Because of their directional properties these antennas are ideal for point-to-point communication, that is, from fixed station to another. A good 4 or 5 element beam is recommended.

The range of the transceiver also has a direct bearing on the height of the antenna used. Regardless of the type chosen, always locate the antenna as high as possible. It is important therefore, to choose a location for the transceiver that is favorable to your antenna location. A long lead-in cable will introduce a certain amount of power loss and should be avoided where possible unless the antenna location justifies its use. Up to 25 feet of cable lead-in may be used if it permits a favorable antenna location.

Wherever possible, use a good water pipe ground. In most cases this will provide greatly improved operation.

MOBILE ANTENNA INSTALLATION

The type of antenna best suited for mobile service is a vertically polarized whip antenna. In any mobile installation (Cars, trucks, boats, etc.), an antenna system that is non-directional has to be used. Other factors likely to offset performance are lack of a good earth ground and ignition interference. However, the base-load type whip antenna will normally provide good results for short-range communications. Greater range and more reliable operation can be obtained with a full quarter-wave vertical whip antenna. Both of these types of antennas use the metal body of the vehicle as a "ground plane". If the transceiver is not mounted to any metal surface, it will be necessary to run a separate ground wire from the unit to a good metal ground in the vehicle. If installed in a boat the transceiver will not operate at maximum efficiency without a ground plate, unless your vessel has a steel hull. However, before installing the transceiver, consult a qualified marine technician regarding an adequate grounding system. The new type hi-gain horizontally polarized Halo antenna for 6 meters or a coaxial antenna is also recommended for mobile operation.

ANTENNA CONNECTIONS

The antenna lead-in cable, RG-58/U, should be terminated with a UHF type PL-259 connector. The receptacle, SO-239, located on the transceiver accepts this type of connector.

The LAFAYETTE Model HE-748WX Halo type antenna or the cowl mount universal 6 Meter Mobile antenna, Model HE-801WX may be connected directly to the transceiver.

IGNITION INTERFERENCE

Engine ignition interference in a car or truck should not present a serious problem. The suppression carried out on vehicles equipped with a standard broadcast radio will normally suffice. However, if an ignition interference problem is present, any skilled auto radio repairman should be able to correct it for you.

Electrical noise from engines and other electrical equipment aboard a boat or vessel can render your transceiver useless. The worst offender will be the ignition system of gasoline engine pow-

ered boats. Generators on both gasoline and diesel engines, auxiliary generators, electric motors on refrigerators, bilge pumps, fans, etc., must be filtered for quiet radio reception.

Unfortunately, there is no hard and fast rule for the elimination of noise. It is best to attack the problem systematically. The ignition system can be filtered by the use of a "spark shield" made to fit most common gasoline marine engines. These shields are easily installed and can be removed for spark plug and point servicing in less than a minute.

Auxiliary generators are quieted down by condenser installations. Condensers of the highest quality, in metal cans, should be used. We recommend that a capacity of 1.0 mfd be used. These are of greater capacity than the condensers normally used in automobile radio installations. The same condensers can be used to filter the other motors. Condensers are installed at the generator armature terminal or, in extreme cases, directly on each brush holder. The metal can is connected to the generator frame. Never connect a condenser to the field terminal of a generator.

The voltage regulator on the larger generators is frequently a source of troublesome noise. Before attempting any filtering on the regulator, have the unit cleaned and adjusted by an expert. If noise is still present, install condensers on the armature terminal of the regulator. Again, do not put a condenser on the field terminal.

Another, more infrequent source of noise is caused by the rotation of the propeller shaft in its various bearings. This rotation causes static electricity discharge. If noise is present when the vessel or boat is underway but goes away when you throw the engine out of gear, you most probably have "shaft noise". This noise can usually be eliminated by installing phosphor bronze "fingers" in such a way as to allow wiping contact with the shaft. The finger is then connected to the engine block with a heavy wire.

Diesel engines have no ignition system and therefore need no shields. The generators must be filtered just as they are for gasoline engines.

Other electrical accessories such as fans, bilge pumps, electric toilets, fresh water system motors, etc., are also a possible source of noise. These units can be noise suppressed by means of condensers.

MOBILE INSTALLATION OF TRANSCEIVER

Before installing the transceiver in a car, truck, boat, etc., be sure to choose a location which is convenient to the operating controls, and will not interfere with the normal functions of the driver. The transceiver may be mounted to the underside of the instrument panel or dashboard of a car, truck, etc., by means of the carrying handle, that is supplied with the transceiver. Remove the two rubber bumpers from the handle to provide mounting holes. Two self threading screws are provided for this. If additional back support is required, provision has been made for the use of a perforated steel strap. Cut and bend the perforated strap to the desired shape, attaching one end to the firewall and the other end to the self threading screw projecting from chassis rear. The 12V D.C. power input cable is terminated with a plug which may be inserted directly into the cigarette lighter socket on a car or truck. A 10 Amp fuse is incorporated as part of this cable. In a more permanent installation the plug should be removed and the cable connected to the main battery source. A convenient place to make this connection would be the ignition switch. In this manner the power input to the transceiver would be controlled by the position of the ignition key. This will prevent unauthorized persons from using the transceiver and also prevent the transceiver from being left on. It is imperative that the "hot" or center lead of this plug is connected to the ignition switch. If this wire is reversed, the fuse in the vehicle will blow.

MAXIMUM POWER TRANSFER TO ANTENNA

With antenna disconnected, insert the recommended dummy antenna, see sketch, into the antenna receptacle. Set transceiver to the transmitting position. Set METER switch to the PRF position. With a combination coil plug alignment tool adjust antenna TUNE condenser (C2), see license label for location,