low charging the battery while in the ship; charging may be done from the retrieve car while trailering, or from house current via a small charging device. That ship battery and car or home charger voltages may differ is remedied by charging in the proper arrangement of six volt banks.

Finding room for the radio within reach of the pilot is a problem in itself. Gliders being as crowded as they are, it appears better to have the receiver, transmitter, and power supply in separate packages on the theory that two small spaces within easy reach are easier to find than one large. Where the power supply goes is immaterial.

The physical location and installation of many antennas on ships at the contest was wretched. "The Antenna, Its Care and Feeding" would be a fine title of a paper to help great numbers of radio-equipped glider pilots. The problem is compounded by the unhappy fact that an antenna which receives well may not transmit properly at all, due to faulty mounting or transmitter misadjustment.

Rather than delve into the intricacies of radio frequency radiating elements, which most readers care little about, it is better to repeat the plea that ship-owners get competent help for transmitter and antenna installation. Help having proper test equipment, preferably a standing wave indicator to catch the antenna at its nasty trick of mirroring much of the power pumped to it, and help which will look for the definite increase in final amplifier plate current as the antenna takes power, are desired.

What can be said of direct use is that for best performance with more chance of equal signal in all directions the antenna should be mounted vertically on the top of the body, centered with respect to width of the fuselage. There should be at least two feet of metal skin (or metal foil, on a wood-and-fabric ship) extending in all directions from the antenna to serve as a good ground plane. And it is imperative that the outer shield of the antenna cable be electrically connected to the ground plane before the antenna can possibly work as designed.

Results of careful investigation by the CAA show that the best place for a VHF antenna on a light plane is either atop the fuselage between the wings, centered with respect to leading and trailing edges and mounted on a ground plane at that point, or atop the body behind the cockpit. The same results may be taken as the usual case for a sailplane.

A clever dual-purpose antenna seen at the nationals consisted of the insulated mast for the total energy venturi extended the required twenty inches above the metal skin of the ship and fed at its base by coaxial antenna cable just as a normal VHF antenna would be. Bakelite or phenolic blocks make suitable insulating clamps to fasten the base of the mast. The less mast below the aircraft skin, the better. A length of neoprene tube was used as the insulating air connection to the venturi mast.

Use of a buried or submerged VHF antenna, until thoroughly proven by exhaustive ground and air tests, is putting your radio candle under a bushel. Stick the rod boldly into the breeze where it can go to work!

Listening In

An automobile isn't the best place in which to listen. It makes too much interference of its own, especially when boring over the flats at 65 mph. with a trailer—too much noise, unless noise suppression measures are taken or the car happens to be a rare quiet machine. For a fine treatment of noise suppression in a car, see the *Mobile Manual for Radio Amateurs*, American Radio Relay League, 1955, p. 87; or see Brooks H. Short, "Automobile Radio Noise Elimination," *QST*, April 1952. Many libraries carry *QST*.

This year's contest with all closed-course tasks kept ship and crew within radio range better than any previous contest. It was possible for the crew to get direct word from their pilot as he rounded a turning point and as he became sure of arriving back at the field. However, to radio the exact spot of an interim landing takes diligence and forethought to know just where one is and to call while high enough to be heard. Once down, relaying a message through a willing airborne ship may connect with the crew. Conciseness here is especially important for other ships are probably having a last shout into the mike before landing and deserve to be heard.

During the contest the author had several occasions to monitor 123.3 mc. on a sentitive airline receiver coupled to a moderately good antenna. The goal and return tasks gave excellent opportunity to measure the transmitting range of the ships. Nearly all of the sixteen radio-equipped craft could be heard all the way to Mineral Wells, 75 airline miles from the receiver in Dallas. This serves to illustrate that low power VHF transmitters, properly installed, have remarkable range and are a valuable adjunct to a soaring machine.

"CHEROKEE II"

(Continued from Page 7)

The ship has about 18 hours on her now; twelve of these with myself at the controls. Today's flight was 3 hours and 10 minutes long; not bad for a first flight.

I am completely satisfied with the ship. In my opinion (and I'm trying to remain as objective as possible) for a Sunday afternoon soarer Cherokee II is tops. One of these days we'll see how she takes to cross-country. Most pleasing of all to me is the knowledge that anybody who has a 20 ft. garage, has access to a table saw, a drill press and a band-saw and has ever built a model airplane, can build her.

Another few weeks should see my own Cherokee II in the air. And soon, I hope, will the 20-odd other Cherokee II's about the country (and one in Australia) be airborne. 1-26's look out!