AN 16-35CU92-2

HANDBOOK OF OPERATING INSTRUCTIONS

for

ANTENNA COUPLING UNIT CU-92/APN

RESTRICTED

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SECTION I

GENERAL DESCRIPTION

1. GENERAL.

Antenna Coupling Unit CU-92/APN is an impedance matching device enabling simultaneous operation of a Loran receiver and an auxiliary receiver from any fixed aircraft antenna.

2. EQUIPMENT SUPPLIED.

The following table lists the equipment supplied:

Quantity per Equipment	*Name of Unit*	*Army Type Designation*	*Dimensions (inches)*	*Weight (pounds)*
1	Antenna Coupling Unit	CU-92/APN	1-5/8 x 2 x 3	0.5 (approx.)

3. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

In addition to the associated Loran equipment and fixed antenna, the following test equipment is required but not supplied:

Quantity per Equipment	*Name of Unit*	*Army Type Designation*	*Required Characteristics*
1	Test Set	TS-251/UP (or equal)	Radio frequency signal generator capable of providing approximately 1 volt modulated output over the range of the Loran band.

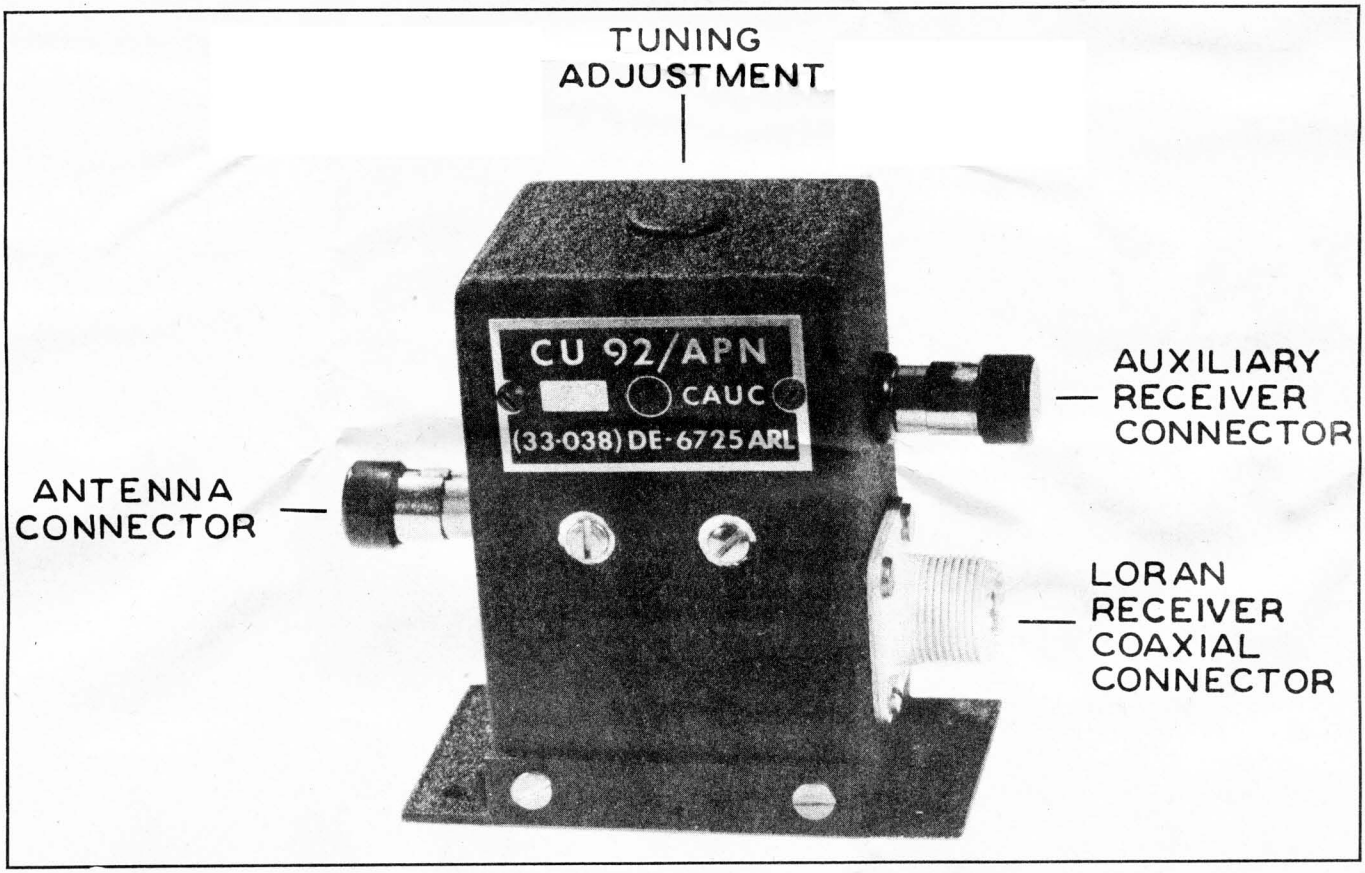

Figure 1-1. Antenna Coupling Unit CU-92/APN—Front View

SECTION II

INSTALLATION AND ADJUSTMENT

1. INSTALLATION.

a. PROCEDURE.—Antenna Coupling Unit CU-92/APN is normally mounted as close to the fixed antenna as is practical. If a transmit-receive antenna switch or changeover relay is used, the coupling unit is mounted nearby. The unit, which is housed in a 1-5/8" x 2" x 3" one-piece box, can be mounted in any position on the nearest convenient surface. It is attached by means of screws placed through four holes in the base. The case must be grounded to the aircraft either directly through the fastenings, or by means of a ground lead.

b. CABLE CONNECTIONS.—Connect the wire from the antenna, or the "receiver" connection on the transmit-receive antenna switch, to the "ANTENNA" binding post on the coupling unit. Connect the coaxial cable from the Loran receiver to the coaxial jack on the coupling unit by means of an AN-coaxial plug. The antenna lead of the auxiliary receiver connects to the remaining auxiliary binding post.

Note

If no auxiliary receiver is used, this binding post must be grounded.

2. ADJUSTMENTS.

a. EQUIPMENT REQUIRED.—Following is a list of equipment required for the adjustment of Antenna Coupling Unit CU-92/APN.

(1) Loran equipment, with which the coupling unit is to be used. (This equipment must be properly aligned in accordance with instructions given in handbook of maintenance instructions.)

(2) A radio frequency signal generator or Test Set TS-251/UP, or equal, capable of covering the Loran band with a modulated output of approximately 1 volt.

b. ALIGNMENT PROCEDURE.

(1) Make sure that the Loran receiver has been properly aligned before installation. This includes an initial alignment of the antenna trimmers.

(2) Slide the receiver out of its case far enough to permit adjustment of the antenna trimmers.

(3) Set up the radio frequency signal generator to produce a modulated output (either sine wave or pulse), turn the output to maximum, and set the frequency to the value corresponding to channel "2" of the receiver channel selector switch.

(4) Turn on the Loran equipment and allow a 5 minute warm-up period.

(5) Couple the signal generator to the "ANTENNA" side of the coupling unit by wrapping a single loose loop of insulated wire from the signal generator around the "ANTENNA" lead.

(6) Set the channel selector switch on the Loran receiver to position "2".

(7) Adjust the gain control on the receiver to produce an image approximately 1-inch high on the Loran indicator.

Note

Readjustment of the gain control will be necessary during the adjustment procedure to maintain the image approximately 1 inch in height.

(8) Remove the plug button from the top of the coupler unit. Insert a tuning tool or small screw driver in the slotted end of the shaft and adjust for maximum gain as indicated by the height of the image on the Loran indicator.

(9) Replace the plug. Make no further adjustments on the coupler unit.

(10) Adjust the "channel 2" antenna trimmer in the Loran receiver for maximum gain as indicated by the image height on the Loran indicator.

(11) Set the receiver channel selector switch on position "1".

(12) Set the signal generator tuning dial to the corresponding frequency.

(13) Adjust the "channel 1" antenna trimmer in the Loran receiver for maximum response. Watch the Loran indicator to determine the correct setting.

(14) Perform steps (10) through (13) for "channel 3" and "channel 4", adjusting the corresponding antenna trimmers.

(15) Slide the receiver back into its case and fasten.

Note

In theaters of operation where one channel is of primary importance and the others are of secondary importance or non-existent, the coupler alignment in step (8) is performed on this channel to provide maximum gain. The remaining channels are adjusted as directed in steps (10) through (13).

(16) If the Loran receiver is replaced for any reason, the antenna circuits on the new receiver must be readjusted in accordance with the procedure described above.

Note

When a replacement Loran receiver is installed it is *not* necessary to retune the coupler.

SECTION III

OPERATION

No operation of this equipment is necessary. It automatically performs its function when either or both the Loran equipment and the auxiliary receiver are operated.

SECTION IV

EMERGENCY OPERATION AND REPAIR

The only emergency repair possible is the complete elimination of the coupler. Disconnect the coaxial lead and make a direct connection to the antenna lead-in. Operation under these emergency conditions will not be very satisfactory since the resulting impedance mismatch will cause a considerable loss of signal. If this emergency operation is employed, it is essential that the electrical connections be as tight as possible.