HIGH SEAS AND OVERSEAS RADIO
LD-R1 RECEIVER
MECHANICAL ADJUSTMENTS AND LUBRICATION

This section contains maintenance procedures for the relays, rotary switches, buzzer, various moving parts in the receiver, and the 50-A automatic frequency control unit (AFC Tuning Motor) (Fig. 1).

The following sections related to the maintenance of relays and alarms are required while performing the tests of this section: Sections 028-100-701, 040-518-701, 040-816-701, and 069-306-801.

CHART **PAGE**

CHART 1

ADJUSTMENT AND LUBRICATION OF RELAYS, BUZZER, ROTARY SWITCHES, AND MOVING PARTS

STEP	PROCEDURE
1	Adjust relays S801, S802, S803, S804, and S805 in accordance with the requirements in Section 040-518-701.
2	Adjust the Dunco 1BXX relay S806 according to Section 040-816-701.
3	Check the 7-type buzzer B101 according to Section 028-100-701.
4	Check the KS-13546 rotary switches according to Section 069-306-801.
5	Using KS-7470 oil, lubricate sparingly the following items: Bearing surfaces of control and capacitor shafts Linkages on RANGE switch Hinges on capacitor rack inside rectifiers Cabinet door hinge and latch mechanism.

CHART 2

LUBRICATION OF THE 50-A CONTROL UNIT

The motor of the 50-A control unit is equipped with ball bearing packed with ANDOK C grease and sealed when manufactured. These bearings should require no attention. The intermediate and capacitor shafts are equipped with oil-impregnated bearings. Lubrication is not normally required except at times of routine cleaning.

APPARATUS:

Burnisher Tool, 365-C

Oil, KS-7470

Oiler, 401-A

Brush

Petroleum Spirits

STEP	PROCEDURE
1	Remove the HF panel.
2	With brush and petroleum spirits, clean pinions and gears, inspect for wear, and lubricate ***sparingly.***
3	Oil ***sparingly*** the upper and lower bearings of intermediate and capacitor shafts. This is done by placing a drop of oil on the 365-C burnisher tool blade and transferring it to the shaft near the bearing. ***Caution: Do not allow oil from the upper bearing of the capacitor shaft to come down to the shoulder on which the ground brush bears. If necessary, clean the brush ends and shoulder with petroleum spirits.***
4	Add a drop of oil to the bearing surface of the hand-adjustment shaft.
5	Return the receiver to standby service.

CHART 3

ELECTRICAL AND MECHANICAL ADJUSTMENTS OF THE 50-A CONTROL UNIT

The procedures in this chart check the resistance of the motor insulation and windings, the ground and alarm brush pressures, the alarm contact clearance and spacing, the end play of shafts, and the capacitor alignment.

CHART 3 (Cont)

Lamps LP1 and LP2 can be replaced by removing the inspection plate located in the upper right corner at the rear of the control unit box.

APPARATUS:

1—Megger, J.G. Biddle No. 679S or equivalent

1—Screwdriver "H" Cabinet, 3-inch

1—Screwdriver, KS-6854, 3-1/2-inch

1—Tweezers, R2217, 4-1/2-inch bent

1—Gauge, 70F, 10-0-10 gram

1—Gauge, 70J, 0-150 gram

1—Gauge, 74D, thickness

1—Key, No. 116, Allen Mfg. Co.

1—Wrench, 417A, 3/8-inch, open-end

1—Wrench, KS-6367, 7/16-inch, open-end

1—Pliers, P Long-Nose, 6-1/2 inch

1—Soldering Iron

1—Emery Cloth, Grit No. 1

1—Crocus Cloth

1—Petroleum Spirits, KS-7860

STEP	PROCEDURE
1	Remove HF panel mat (Panel 2).
2	Unscrew and lift off the front cover of the control unit box.
3	Unsolder the eight external leads from the control unit terminal strip.
	Note: Tag leads to ensure correct replacement.
4	Loosen the locknut on the cable clamp assembly and swing the cable form clear of the box.

CHART 3 (Cont)

STEP	PROCEDURE
5	At the rear of the control unit, disconnect the coaxial cable plug from the jack.
6	Remove the four nuts and bolts holding the control unit box to the receiver panel.
7	Remove control unit box from receiver panel. ***Caution: While handling the control unit, take care not to drop or jar. This is a delicate instrument.***
8	Remove the four screws from the rear of the box and draw out the mechanism.
9	With the megger, measure the resistance between the frame and terminals 1 through 5 in turn. ***Requirement:*** At least 10 megohms.
10	Measure resistance of each of the four motor windings by connecting megger from terminal 5 to terminals 1 to 4 in turn. ***Requirement:*** 1600-2400 ohms. The variation of any one reading is less than 100 ohms from the average of all four readings.
11	With gauge, measure pressure of each time of the ground brush on the shoulder near the top of capacitor shaft. Clean the brush contacts and shoulder with petroleum spirits. ***Requirement:*** 40-60 grams.
12	With scale set at 0, measure pressure of alarm commutator brush against the cap plate on which S1 is stenciled. ***Requirement:*** 5-15 grams.
13	Measure clearance between alarm commutator brush and edge of shaft cutout. ***Requirement:*** 0.005 inch.
14	Measure alarm contact spacing and correct, if necessary, by turning the adjusting screw. ***Requirement:*** 0.010 inch.
15	Turn the scale to approximately 4-3/4 in each direction and note that alarm contacts close positively. Inspect contacts; burnish and clean if necessary.
16	The permissible end play in the intermediate and capacitor shafts is from 0.001 to 0.004 inch. Check by holding the top bearing setscrew with key while loosening locknut with wrench. Turn setscrew down until it just bears on top of shaft. Then turn it up 1/16th of a turn, hold it with key, and tighten locknut with wrench. ***Note:*** See that bottom end of each shaft rests on 1/16-inch steel ball.

CHART 3 (Cont)	
STEP	**PROCEDURE**
17	Turn capacitor shaft slowly until capacitor plates are fully meshed and observe their alignment. ***Requirement:*** The rotor plate is parallel to and equidistant from the stator plates for all rotor positions. Gauge by eye.
18	With capacitor plates fully meshed, place the mechanism in the normal position in its box, hold box cover in plate, and observe scale lineup. ***Requirement:*** Black 5 line of scale lines up with vertical index line of cover window. ***Note:*** If this requirement is not met, loosen scale-mounting setscrew, correct scale position, and tighten setscrew.
19	Return the receiver to a standby service condition.

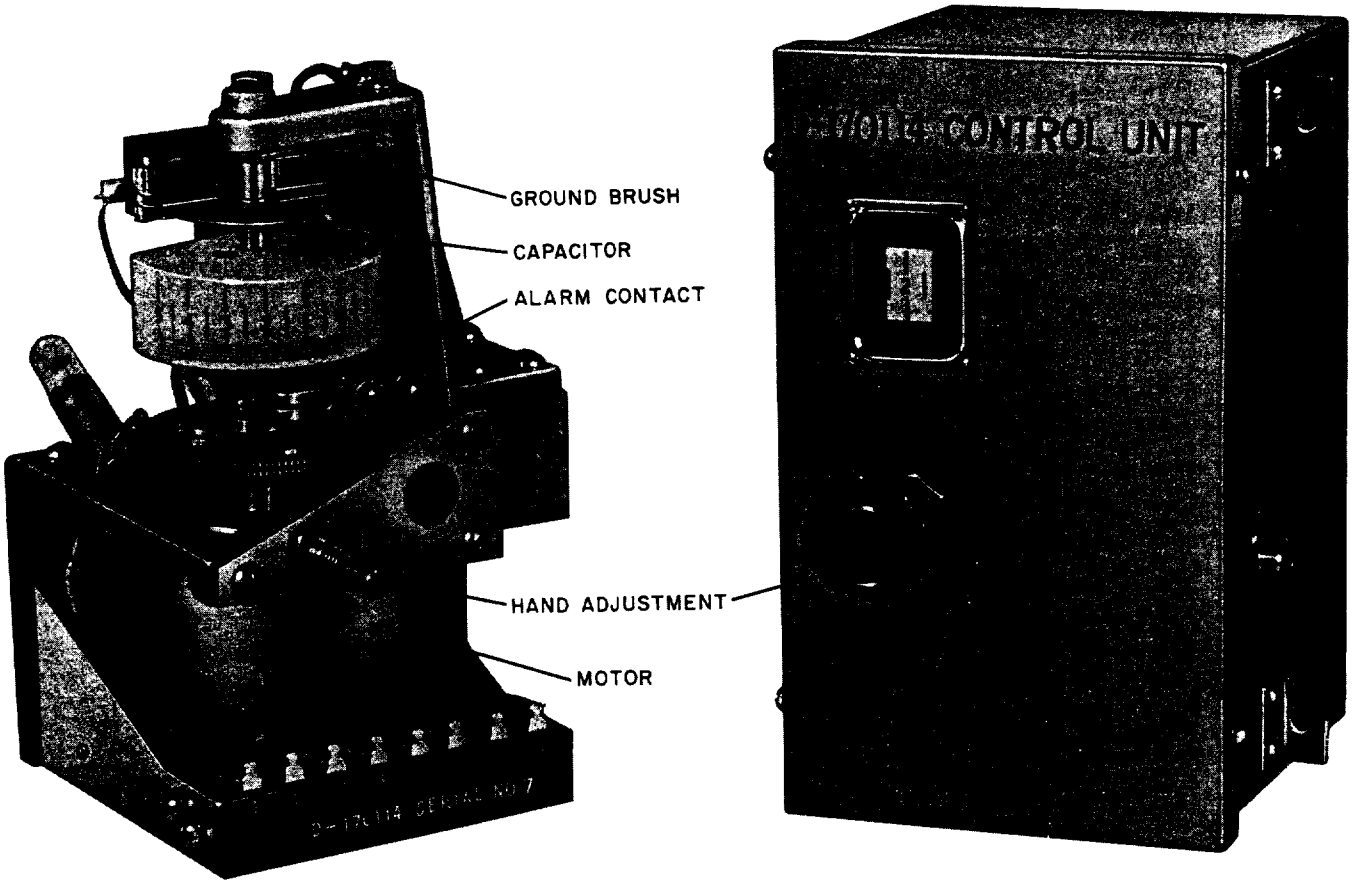

Fig. 1—50-A Automatic Frequency Control Unit