RADIOMARINE CORPORATION OF AMERICA

While Radiomarine throughout its early years was primarily a communications company operating extensive ship to shore, shore to ship and ship to ship radio services, it has now become a large manufacturer of a complete line of marine radio apparatus as well. Consequently, an adequate description of the company must cover these two related but distinct fields.

The present communications services of Radiomarine are the progressive outgrowth of long experience in marine radio which began with the Marconi Wireless Telegraph Company of America many years ago. The bulk of this service is handled by telegraphy with the traffic being composed of radiograms to and from passengers, information relating to weather conditions and to obstructions to shipping, orders and information pertaining to ship operations and special services such as medical advice and the transmission of news for publication on vessels.

Some of the larger passenger liners were also equipped with radiotelephone equipment which provided long distance service directly linking the ship with shore exchanges, while low power equipment was also available for short distance work such as harbor communication with tugs.

The radiotelegraph services were carried on through some sixteen coastal stations owned and operated by Radiomarine, while the telephone services utilized the existing telephone companies on the shore end.

The war almost completely closed these services, but at present four coastal stations have been reopened and it is expected that in the future complete service will be resumed. At this time no radical changes are contemplated in the operation of these communication services, but as improvements in equipment or other developments take place Radiomarine will take full advantage of such, if by so doing its marine communications can be bettered.

In the field of engineering and manufacturing of marine radio equipment Radiomarine occupies the leading position in the United States and has pioneered many important developments. Prior to the war these activities were on a relatively small scale, but with the vast increase in the merchant marine and the demand from other government services for marine radio equipment a tremendous expansion of both engineering developments and manufacturing took place. An idea of the manufacturing facilities can be gained from the fact previously mentioned that approximately 80% of the American Merchant Marine is equipped with apparatus manufactured by Radiomarine.

Constant design improvements have been made and a number of new transmitters and receivers have been put into production in the last several years. A major step forward was taken with the design and production of self-contained console type equipments including all the radio communication and navigation equipment for a ship in one unit which could be readily installed in a minimum of time.

While navigational and safety equipment is still much the same as it was several years ago, it is expected that some of the techniques of aircraft navigation developed during the war will be applicable to vessels as well. When this takes place Radiomarine will be in the forefront of the production and application of such equipment.

A brief outline of the principal products of Radiomarine is given below.

1. **MODEL 4U** - This is the new self-contained console unit mentioned previously which has been primarily designed and manufactured for installation on U.S. Maritime Commission vessels. The primary purpose of the design was to reduce the installation time and make it easier for less skilled workers to handle the installation. This is accomplished in the Model 4U by means of *"unit frame"* construction wherein the various radio units are completely assembled and wired at the factory in their respective frames. Pre-fabricated *"inter-frame"* cables are supplied for ready connection inside the console. This equipment has been so successful that it is in use on a majority of vessels built during the war.

   The component units are also new and the major ones are listed below.

   a. Main Transmitter, three tubes, 200 watts output, 8 frequencies, 350 to 500 kc, A-1 and A-2 emission, Model ET-8024-A.

   b. Emergency Transmitter, six tubes, 40 watts output, 5 frequencies, 350 to 500 kc, A-2 emission, Model ET-8025.

   c. High Frequency Transmitter, five tubes, 200 watts output, 2000 to 24,000 kc, A-1 and A-2 emission, Model ET-8023.

   d. Main and Emergency Receiver, five tubes, low and intermediate frequency, 15 to 650 kc, Model AR-8510.

   e. Communication Receiver, ten tubes, intermediate and high frequency, 85 to 550 kc, and 1900 to 25,000 kc Model AR-8506-B.

f. Emergency Crystal Receiver, intermediate frequency, 350 to 515 kc, Type D.

g. Auto Alarm, nine tubes, for automatic reception of the International Auto Alarm Signal on 500 kc, Model AR-8601.

h. Alarm Signal Keyer, for automatic transmission of the International Auto Alarm Signal, Model AR-8651.

Motor generator equipment is included as part of the Model 4U as well as the necessary batteries and battery charging facilities. Antenna material and spare parts are also furnished so that the Model 4U is a complete equipment ready for operation after proper installation.

2. **ET-8010 - 8010A** - This is a radiotelegraph transmitter having an output of 200 watts and covering a frequency range of 355 to 500 kc with five pre-tuned frequencies. It has been designed for operation both from the ship's main power supply and from the emergency storage battery supply.

3. **ET-8019** - A high frequency radio telegraph transmitter utilizing beam pentode tubes and covering a frequency range of 4140 to 16,660 kc with an output of 200 watts and also 22 mc with an output of 150 watts.

4. **ET-8003** - This transmitter has been in use as an emergency low frequency telegraph transmitter, having an output of 50 watts, for many years. The great majority of U.S. vessels and a number of foreign ships have used this equipment.

5. **ET-8004A** - This is a companion transmitter to the ET-8003 and has an output of 50 watts. It operates on selected bands between approximately 5500 and 16,680 kc. The motor generator unit furnished with it also operates the ET-8003 and can be driven either by the ship's main power supply or the storage battery emergency supply.

6. **ET-8017** - This is a high power intermediate frequency telegraph transmitter including provision for ten output frequencies with instantaneous change from the 500 kc calling frequency to a working frequency. The power output is approximately 1 kw and the frequency range covered is 350 to 500 kc.

7. **ET-8016** - This transmitter operates on ten frequencies with a power output of 1000 watts in the frequency band of 110 to 160 kc. Otherwise it is similar in most respects to the ET-8017.

8. **ET-8018** - A high frequency radiotelegraph transmitter with an output of 1000 watts operating on five selected bands between approximately 4100 kc and 22.2 mc. Within each of the five

basic frequency bands provision is made for six crystals so that a total of 30 output frequencies may be obtained.

9. **AR-8510** - This is a newly developed low frequency receiver taking the place of the old Model AR-8503. Continuous frequency coverage between 15 and 650 kc is provided and in accordance with the FCC regulations it includes a non-radiating regenerative detector. This unit is battery operated in order that it may be suitable for emergency service.

10. **AR-8504** - This is a compact intermediate frequency receiver designed primarily for emergency use. It covers a frequency range of 300 to 900 kc and operates from battery power.

11. **AR-8505** - A compact rugged superheterodyne receiver for operation directly from either 115 or 230 volts AC or DC line. It covers a frequency range of 540 to 30,000 kc in four bands.

12. **AR-8701A** - This is a medium sized direction finder for installation in the wheelhouse or chartroom of passenger or cargo vessels. It includes a highly selective and sensitive eight-tube superheterodyne receiver and the entire unit is ruggedly constructed to withstand the heaviest kind of shipboard use. In order that the ship's magnetic compass will not be affected, no steel or iron is used with the exception of ball bearings.

13. **AR-8703A** - This is a large binnacle type direction finder designed for installation in the wheelhouse or chartroom of passenger or cargo vessels. It also includes an eight-tube superheterodyne receiver and the entire equipment is very ruggedly constructed with no steel or iron being used except for ball bearings. The batteries are mounted in the lower section of the binnacle, thus making for a more compact installation.

14. **AR-8703B** - This unit is very similar to the AR-8703A except that it includes a smaller loop with a different type of mounting on the binnacle.

15. **AR-8707** - This direction finder is designed for smaller cargo or passenger vessels or larger yachts. The receiver is essentially the same as in the previous units and the chief differences are in the method of mounting the compass scales and a different type of binnacle.

16. **AR-8704 and 8700AS** - These are direction finder chassis which have been developed to permit modernization of older types of direction finders and provide a more sensitive and selective radio receiver together with improved reliability and operation. The Model AR-8704 has been designed primarily for use on the Great Lakes of the U.S. where operation is generally

direct from the shipboard 110 volt DC power supply. This design eliminates the use of all batteries and, accordingly, makes it unnecessary to remove batteries when the vessels are laid up during the winter season. The AR-8700AS utilizes battery supply in old type binnacles and provides an eight-tube superheterodyne receiver.

17. **ET-8028** - This is a compact low power radiotelephone transmitter and receiver with remote control unit designed primarily for two-way mobile marine communication. The transmitter is nominally rated at 5 watts and covers a frequency range of 2000 to 3500 kc. Four pre-tuned frequencies within this band are used.

18. **ET-8027** - A compact low power radiotelephone transmitter and receiver having an output of approximately 25 watts and covering a frequency band of 2000 to 3500 kc. Provision is made for the use of a maximum of six pre-tuned frequencies within this band. It can be supplied with power units for operation on any one of the following voltages: 12 volts DC, 32 volts DC, 115 volts DC, 230 volts DC and 115 volts AC.

19. **ET-8020** - This is a radiotelephone transmitting and receiving equipment designed primarily for service on the Great Lakes in the U.S. It provides two-way selective calling, automatic operation on 2181 kc, six channels with complete remote control. Power output is 100 watts and the frequency range is 2000 to 9000 kc with six pre-tuned transmitting and receiving frequencies as mentioned above.

20. **ET-8012B** - This is a compact radiotelephone transmitting and receiving equipment in a single unit for smaller vessels such as yachts and tugs. It has been designed primarily for voice communication with coastal harbor stations and other ships. The power output is 75 watts and the frequency range is 2000 to 3000 kc with ten pre-tuned frequencies within that band. The radio receiver includes a built-in automatic ringer which enables the coastal harbor stations to call the vessel by bell, eliminating the need for standing by on the loudspeaker for such calls. A loudspeaker is provided however.

21. **ET-8011A** - A low power radiotelephone transmitting and receiving equipment for two-way voice communication with harbor stations or other vessels. The power output is approximately 15 watts and six pre-tuned frequencies between 2000 and 3000 kc are provided on the transmitter while the receiver is tuneable over three frequency bands and covers 540 to 1550 kc., 2300 to 7000 kc and 7000 to 22,000 kc.

22. **ET-8009A** - A radiotelephone transmitting and receiving equipment designed for large vessels and to provide long distance two-way communication. The power output is 600 watts and the frequency range of approximately 4140 kc to 17,608 kc is covered in five bands. Each of the five bands has provision for six crystals so that a total of 30 output frequencies may be obtained. When required the control unit which provides facilities for a maximum of five telephone extensions throughout the ship can also include a speech scrambler unit.

23. **ET-8007** - This is a lifeboat radio transmitting and receiving equipment which complies with U.S. Government requirements for a radio installation on motor lifeboats of some passenger vessels. The equipment is battery operated and the transmitter operates on 500 kc with a plate power input of not less than 75 watts. The receiver covers 350 to 550 kc and is tuneable over this range.

24. **AR-8600** - An auto alarm equipment approved by the FCC and designed to stand watch on the International 500 kc distress frequency. When a distress call is received warning bells within the auto alarm are actuated. The unit consists essentially of the radio receiver for installation in the radio room and two bell and warning light units, one of which is installed on the bridge and one in the radio operator's cabin. A bell and warning light unit is also included on the equipment installed in the radio room.

25. **ET-8010B and D** - This transmitter provides 275 to 325 watts on A-1 emission, and 350 to 400 watts on A-2 emission. Five pre-tuned frequencies between 355 and 500 kc are available. This transmitter is also available for emergency as well as main operation in which case it would operate from a storage battery with an output of 50 watts. The B and D models are the same in all respects with the exception of the motor generator set.

26. **ET-8010C and CA** - This transmitter provides 200 watts output with eight pre-tuned frequencies in the frequency range of 355 to 500 kc. The CA model combines both main and emergency operation in which case it will operate from a battery and provide 50 watts output.

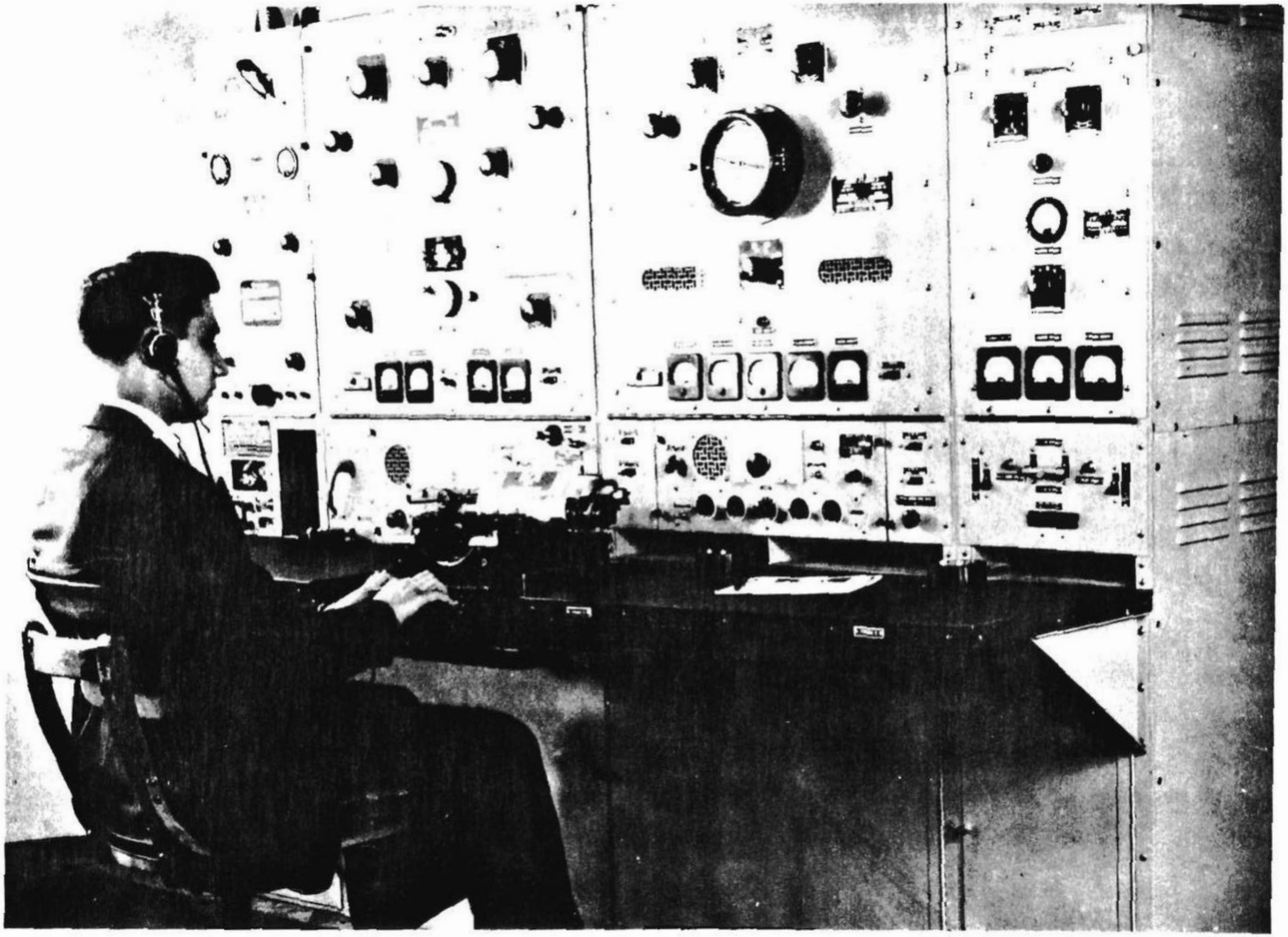
27. **ET-8019A** - A radiotelegraph transmitter with an output of 200 watts between 2050 and 17,000 kc and 150 watts between 17 and 22 mc. The frequency coverage is continuous by means of front panel controls.

28. **ET-8019B** - A radiotelegraph transmitter having an output of 200 watts between 4000 and 18,000 kc and 150 watts at 22 mc. Eight bands are provided between 4000 and 22,000 kc.

29. **AR-8506B** - This is the high frequency receiver used in the Model 40 equipment. It is a ten-tube superheterodyne covering a frequency range of 85 to 550 kc and 1.9 to 25 mc. It may be operated directly from either 115 volts AC or DC.

30. **ET-8022C** - A lifeboat equipment including a compact transmitter and receiver mounted in a water-tight cabinet and a small hand-driven generator for furnishing power. Thus, no batteries are required and since the power requirements are low one or two persons may readily rotate the generator unit. The transmitter delivers 3 to 4 watts into the antenna and operates on the International distress frequency of 500 kc. The receiver also operates on the same frequency.

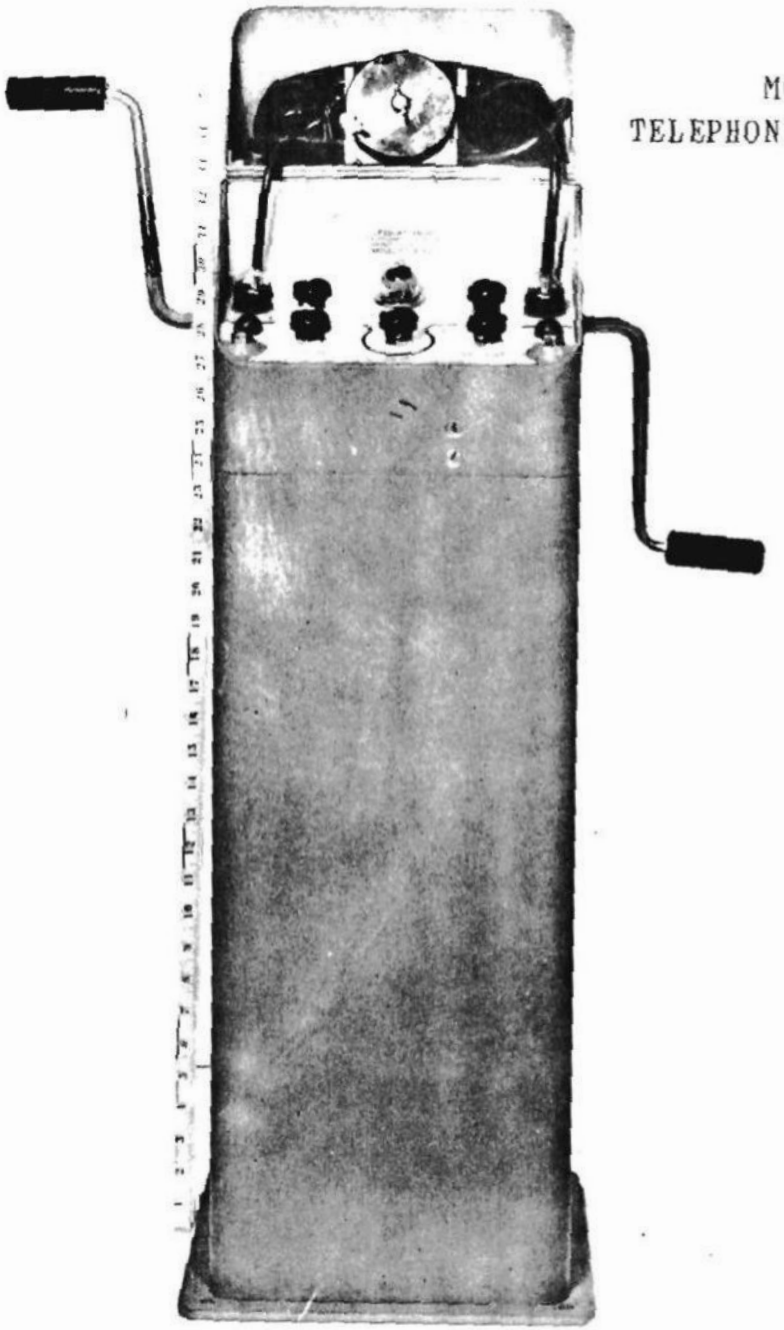
31. **ET-8030** - This is a new type lifeboat telephone and telegraph equipment completely housed in a watertight binnacle which also includes a built-in hand-driven generator. It can be used to automatically transmit SOS signals for distress and long dashes for direction finding both on 500 kc distress frequency and a shortwave frequency of 8280 kc. The receiver included is pre-tuned to 500 kc and can be tuned to any frequency between 8100 and 8600 kc. The entire equipment therefore may be used for two-way telegraph or telephone communication as well as automatic telegraph transmission. It can be operated with either a kite or balloon supported antenna or with a fixed antenna rigged to the sailing mast.



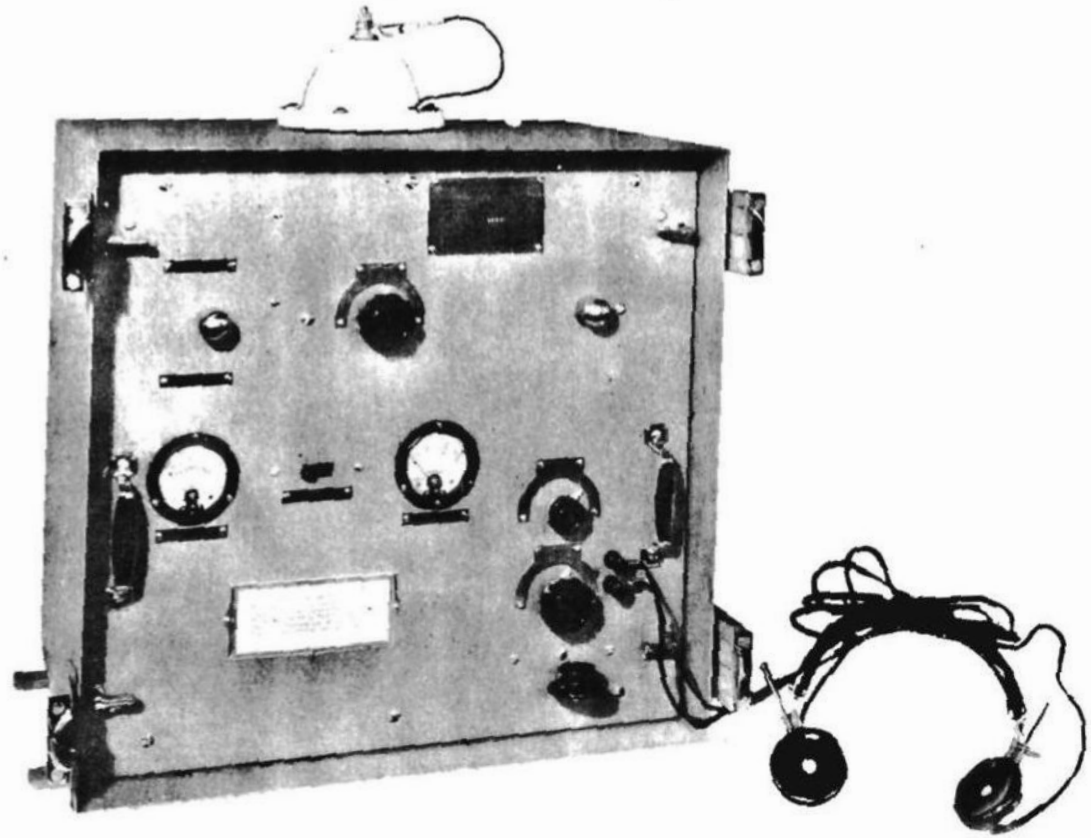
MODEL 40 RADIO UNIT

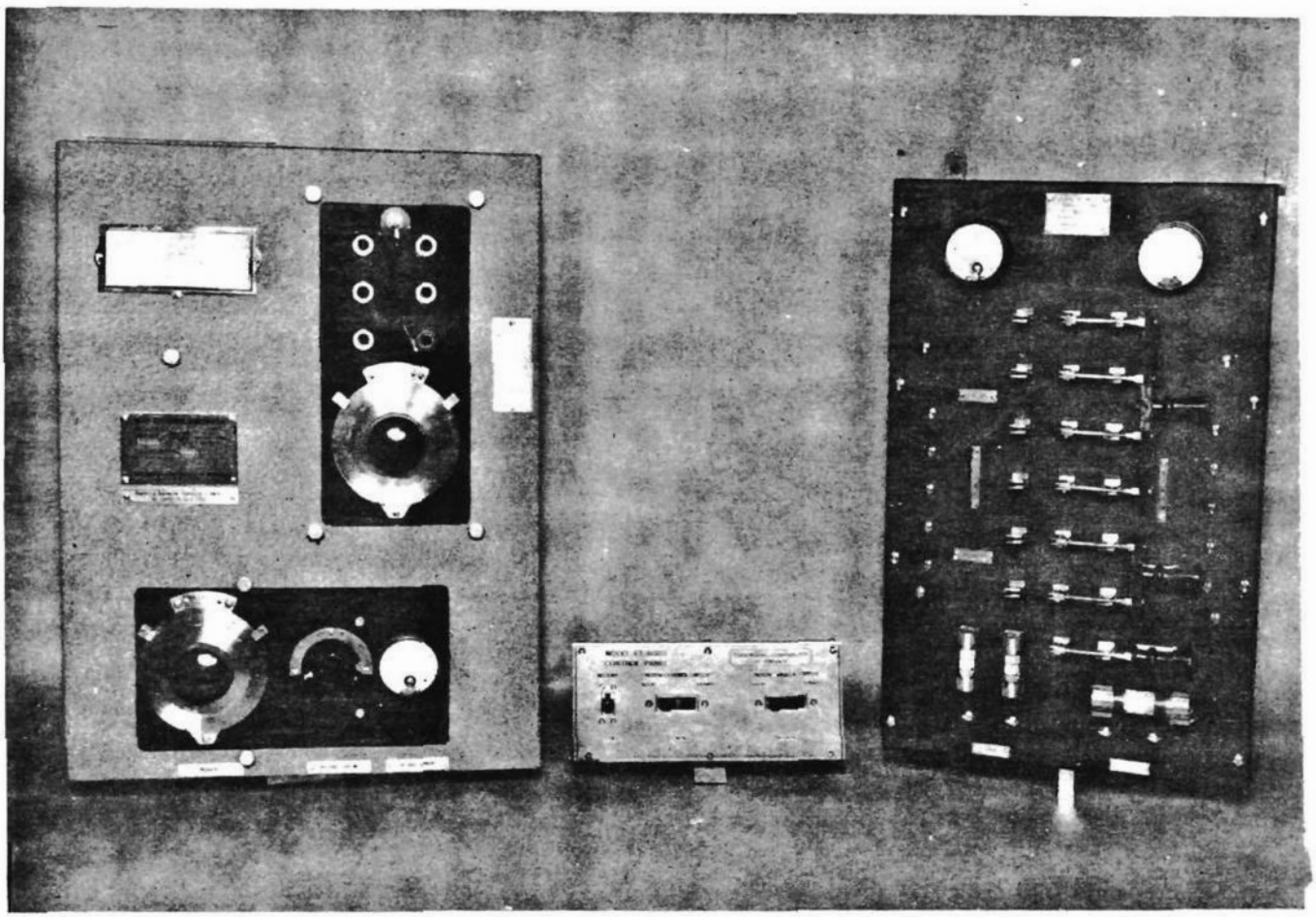
(23-A)

MODEL ET-8030 LIFEBOAT RADIO
TELEPHONE - TELEGRAPH TRANSMITTER - RECEIVER



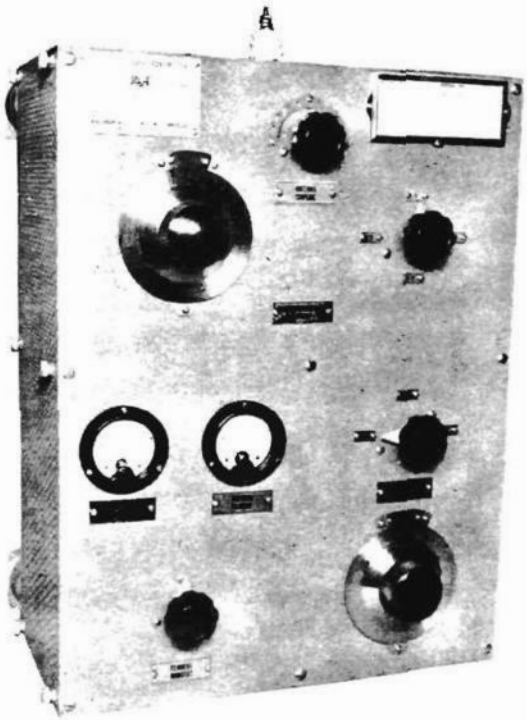
MODEL ET-8007
LIFEBOAT RADIO TRANSMITTER-RECEIVER
EQUIPMENT



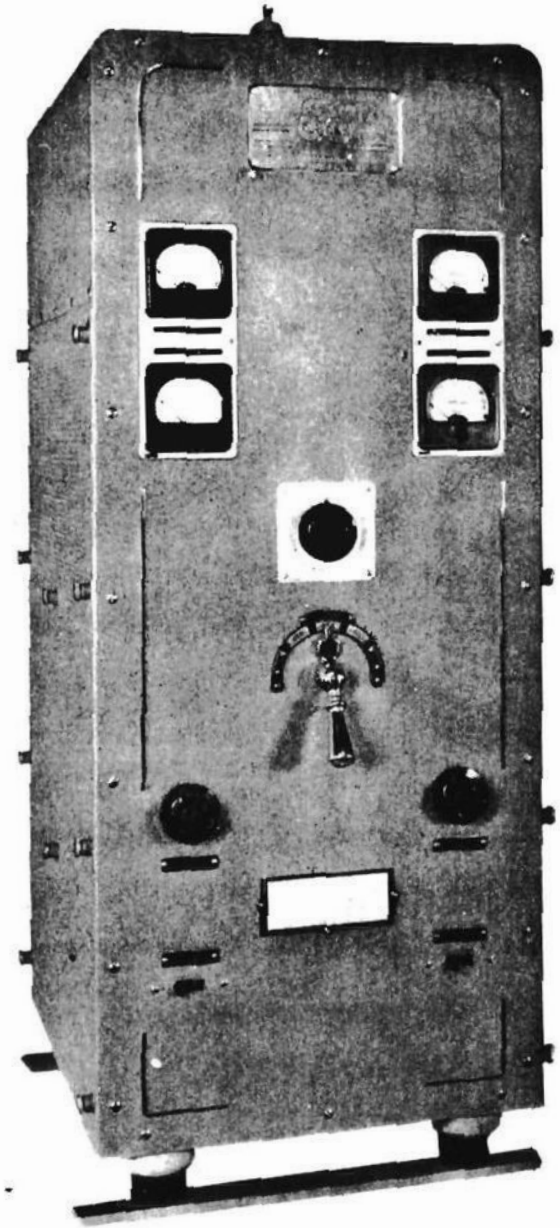


MODEL ET-8003 EMERGENCY RADIO-
TELEGRAPH TRANSMITTER
50 WATTS, 375 TO 500 KC.

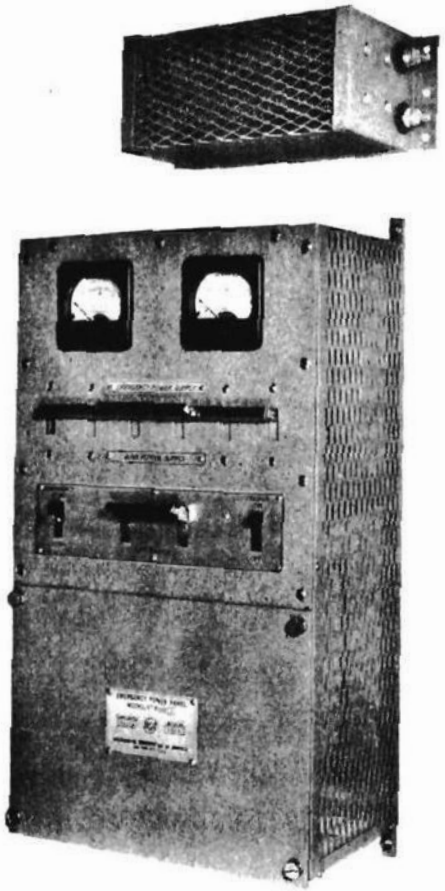
CONTROL PANEL
POWER CONTROL AND CHARGING PANEL



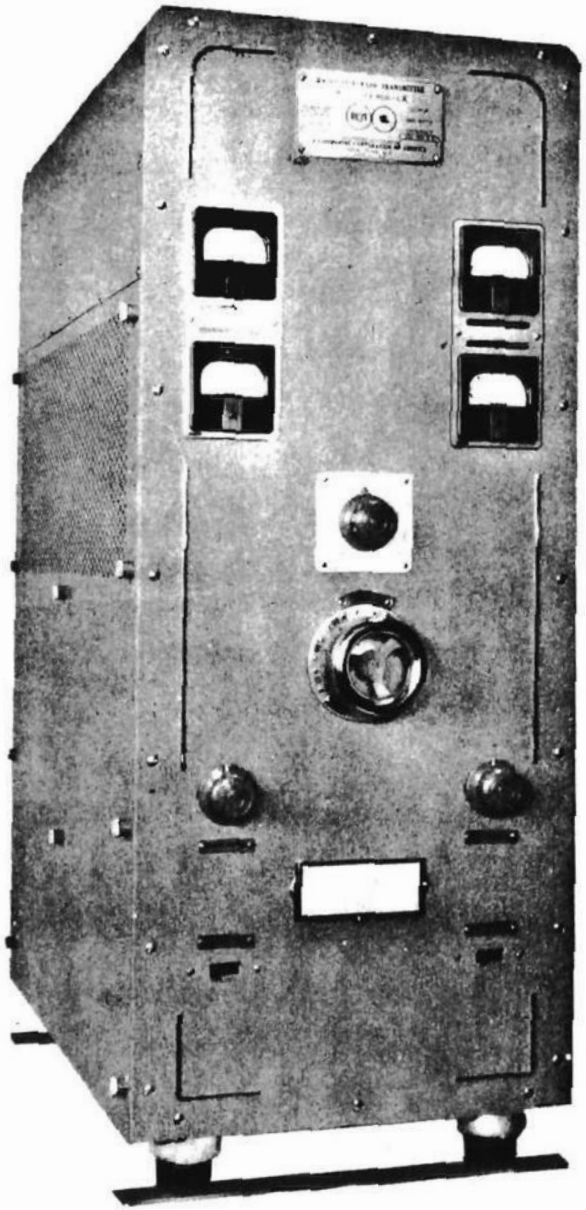
MODEL ET-8004-A
HIGH FREQUENCY RADIOTELEGRAPH TRANSMITTER
25 TO 50 WATTS, 5510 TO 16680 KC.



MODEL ET-8010 MAIN RADIOTELEGRAPH
TRANSMITTER
200 WATTS, 355 TO 500 KC.

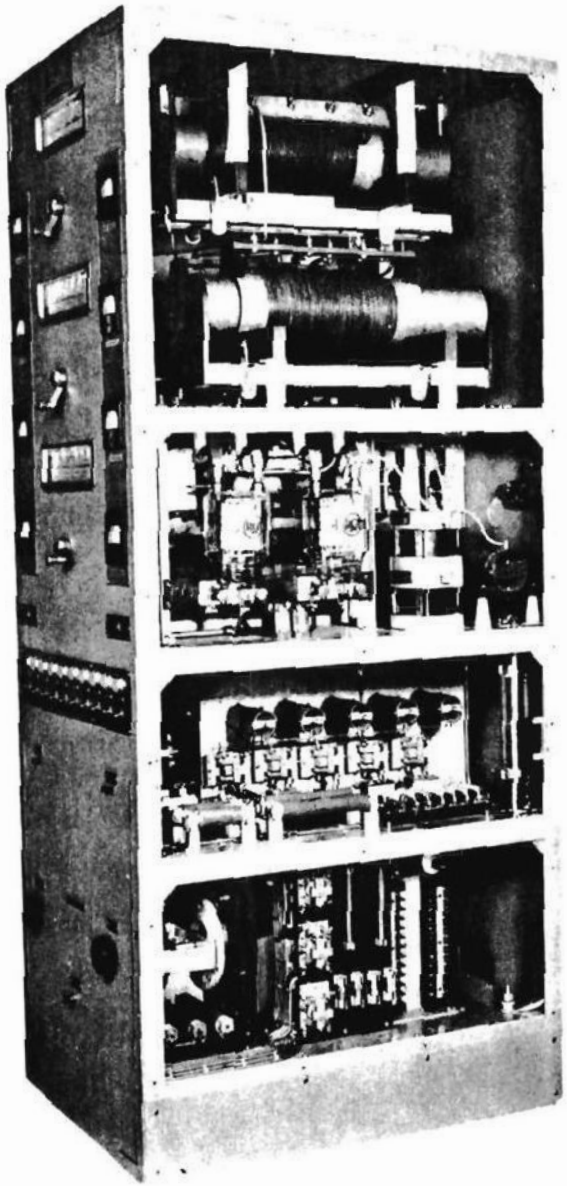


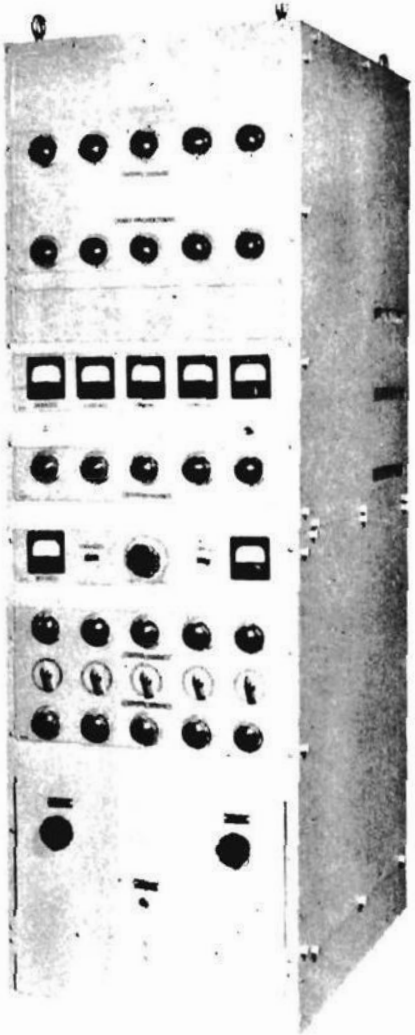
ET-8010-A
EMERGENCY POWER PANEL

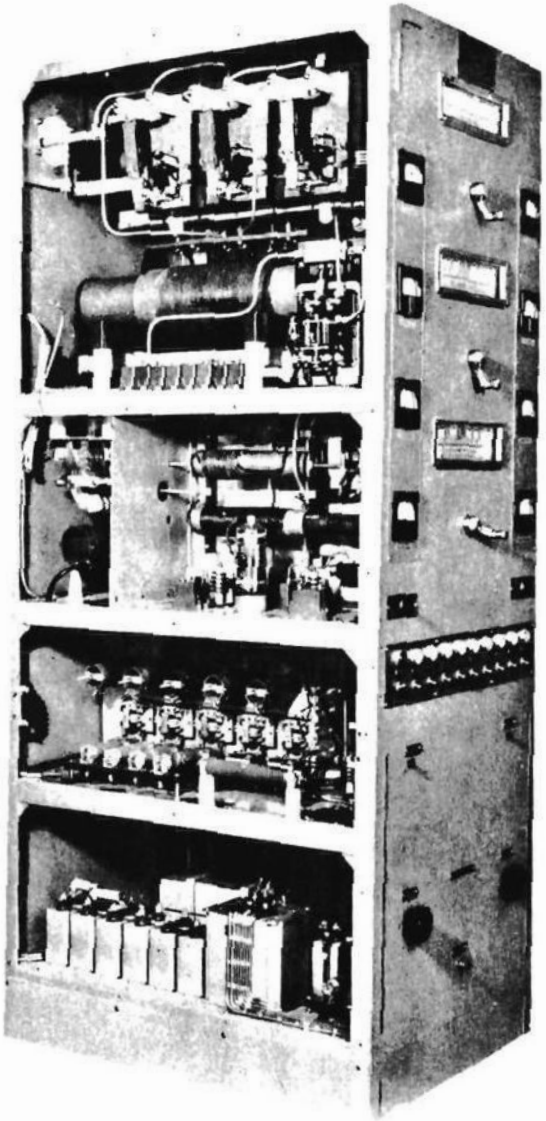


MODEL ET-8010-C MAIN RADIO-TELEGRAPH
TRANSMITTER

MODEL ET-8018 HIGH FREQUENCY
RADIOTELEGRAPH TRANSMITTER
1000 WATTS, 4140 TO 22200 KC.

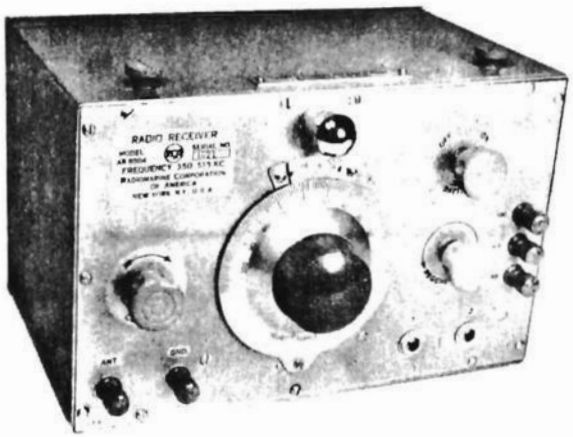




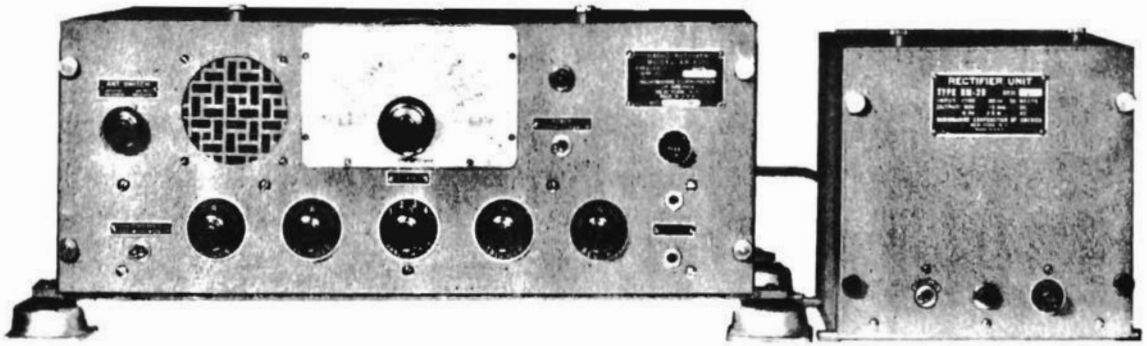


MODEL 8017-2 INTERMEDIATE FREQUENCY
RADIO TELEGRAPH TRANSMITTER

MODEL ET-8017-1 INTERMEDIATE-FREQUENCY
RADIOTELEGRAPH TRANSMITTER
1000 WATTS, 350 TO 500 KC.

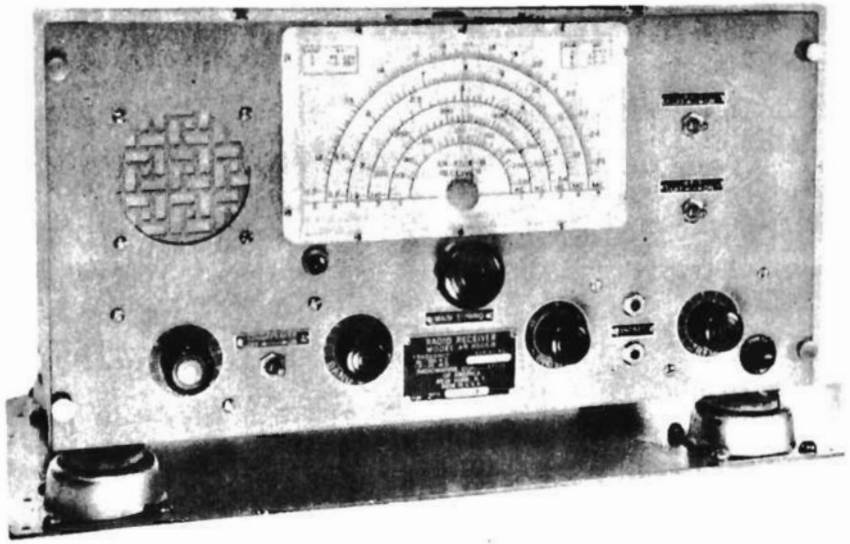


MODEL AR-8504 RADIO RECEIVER
300 TO 900 KC.

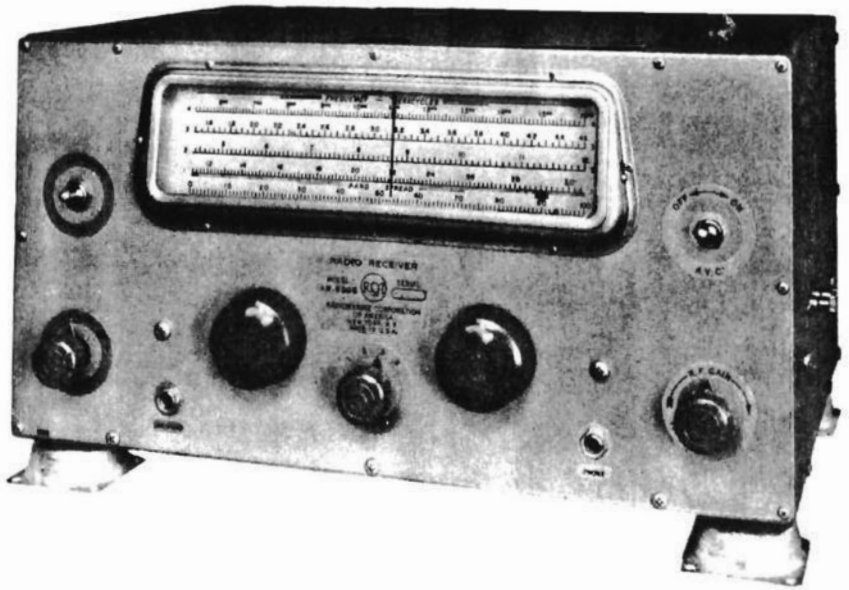


MODEL AR-8510 RADIO RECEIVER
and
TYPE RM-29 RECTIFIER UNIT

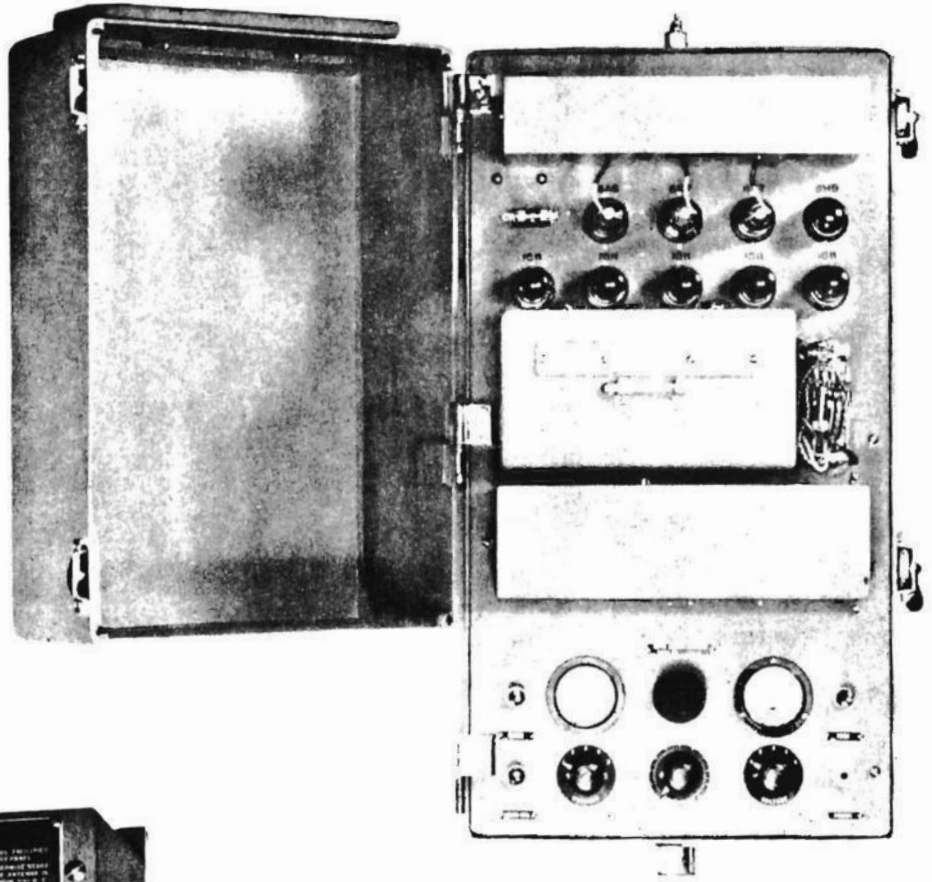
MODEL AR-8506-B RADIO RECEIVER



MODEL AR-8505 HIGH FREQUENCY
RADIO RECEIVER
540 TO 30,000 KC.

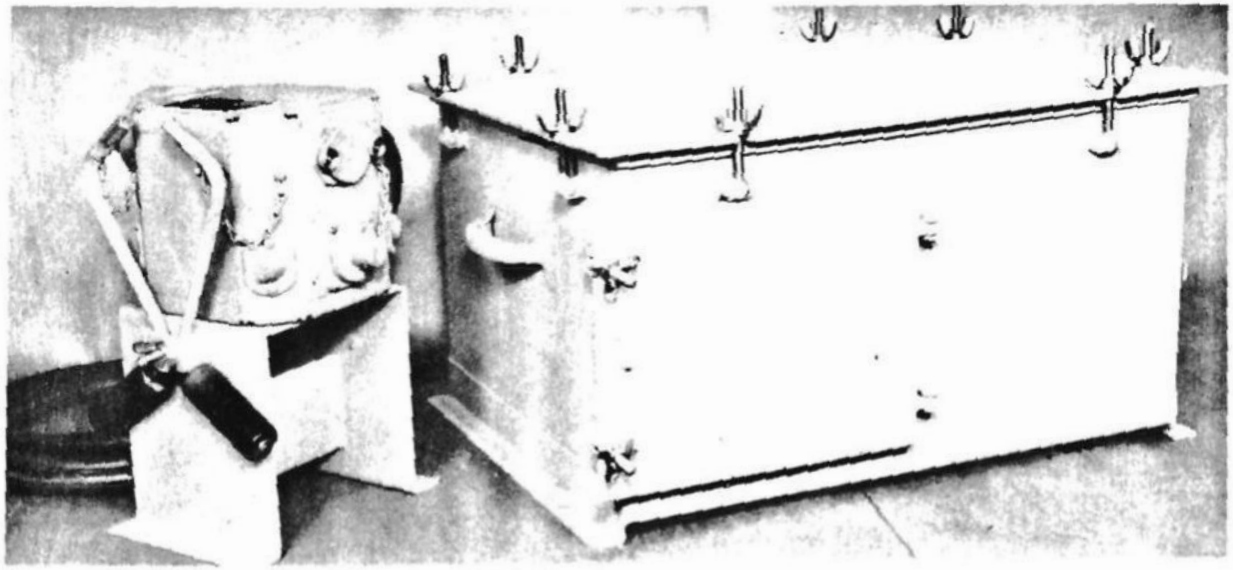


MODEL AR-8601 AUTO ALARM

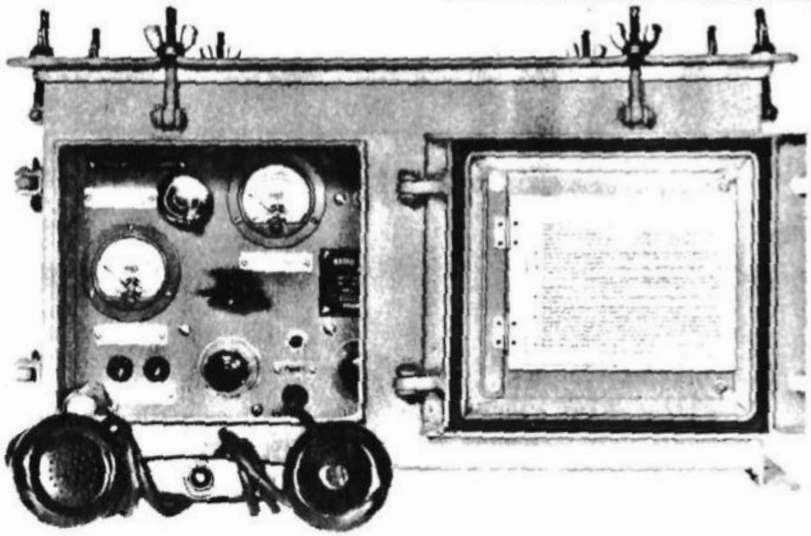


MODEL AR-8600-1
AUTO ALARM

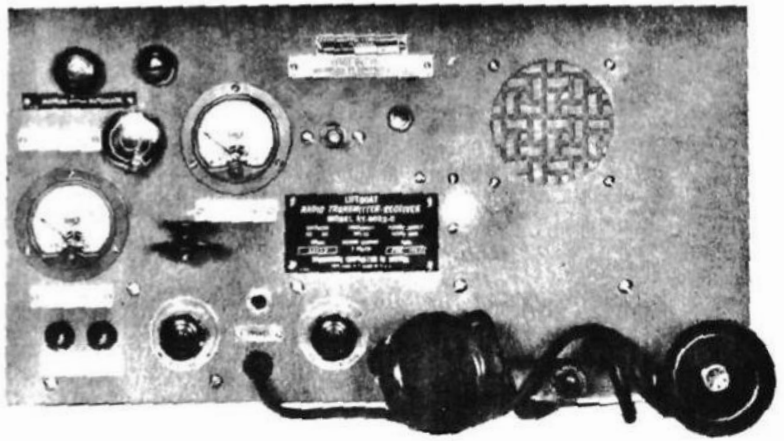
MODEL AR-8651 ALARM SIGNAL KEYER



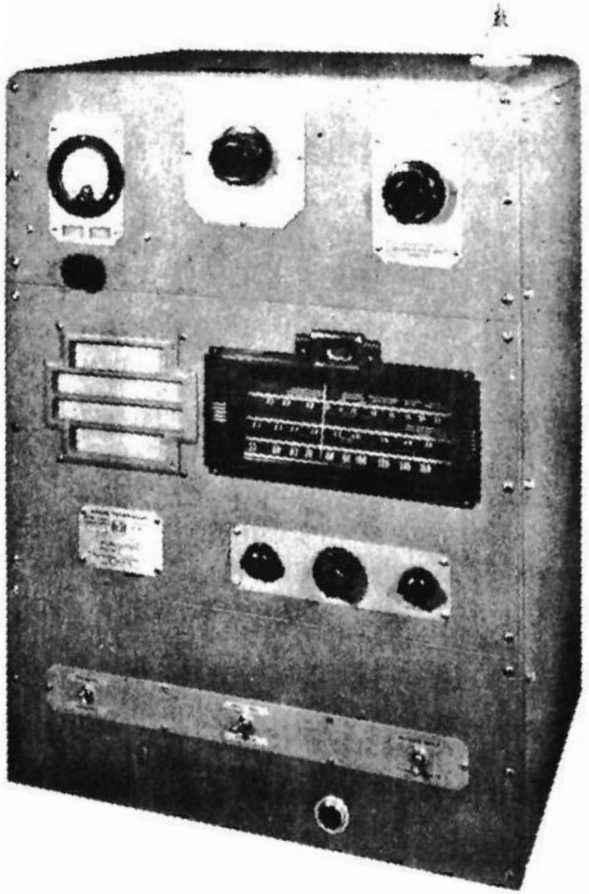
MODEL ET-8022-C LIFEBOAT RADIOTELEPHONE AND RADIOTELEGRAPH
TRANSMITTER-RECEIVER and HAND DRIVEN GENERATOR



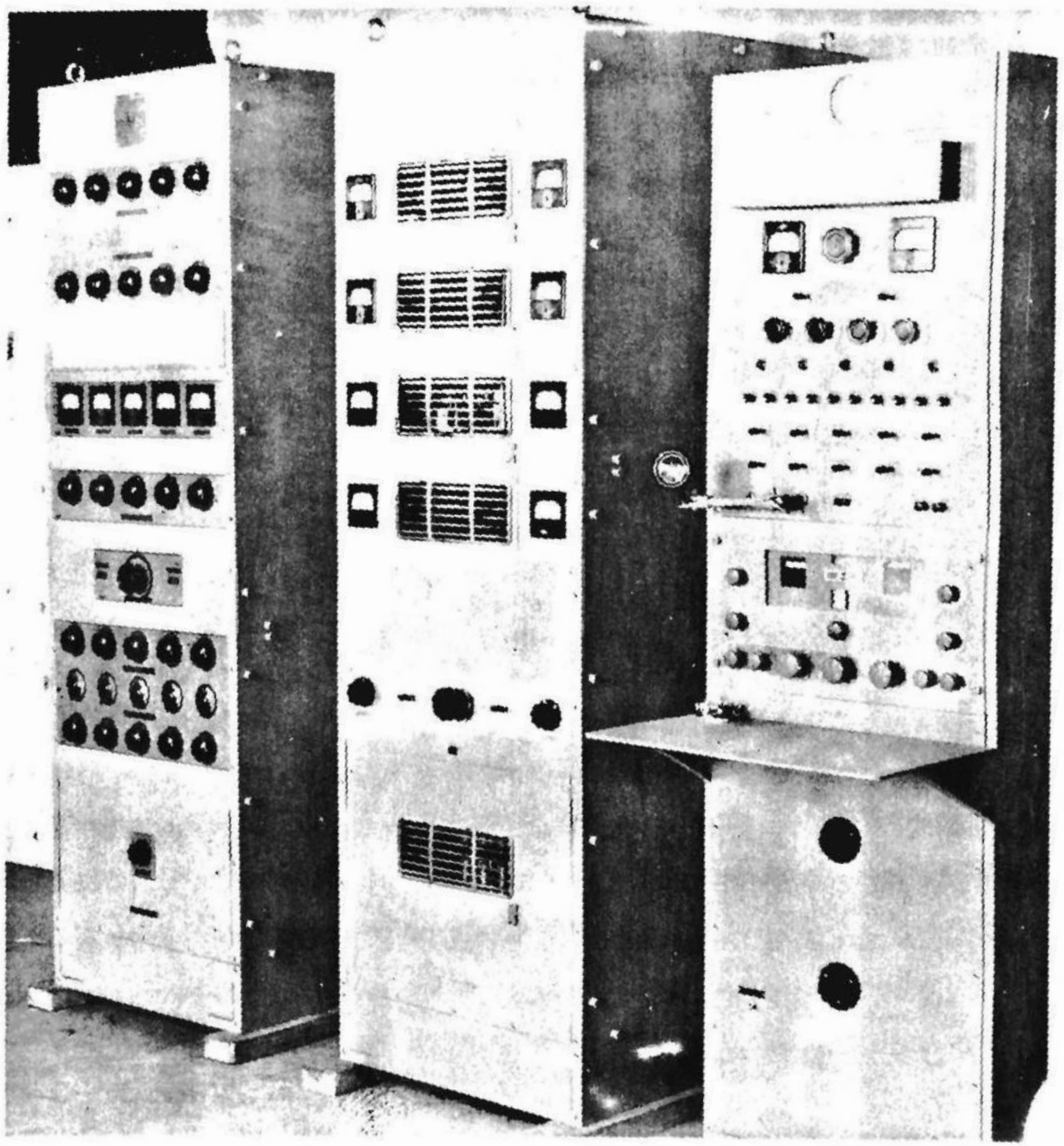
MODEL ET-8022-C LIFEBOAT
RADIOTELEPHONE AND RADIOTELEGRAPH
TRANSMITTER-RECEIVER



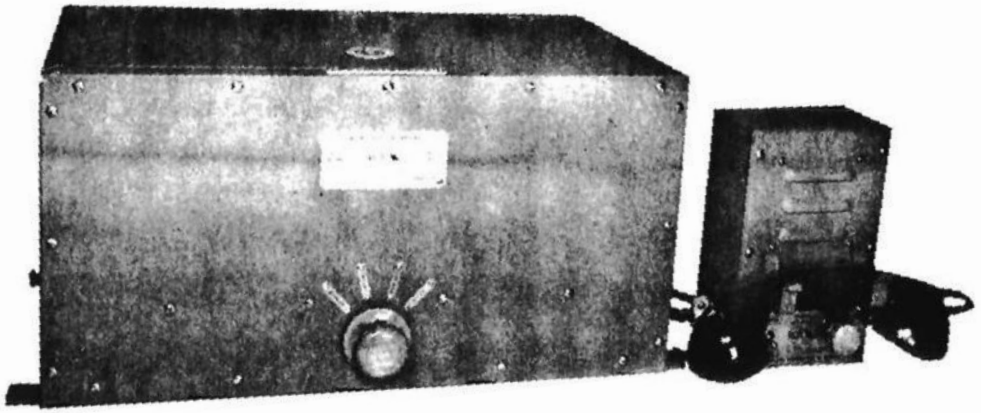
MODEL ET-8022C
LIFEBOAT RADIO TRANSMITTER - RECEIVER



MODEL ET-8011-A RADIOTELEPHONE
15 WATTS, 2000 TO 3000 KC.

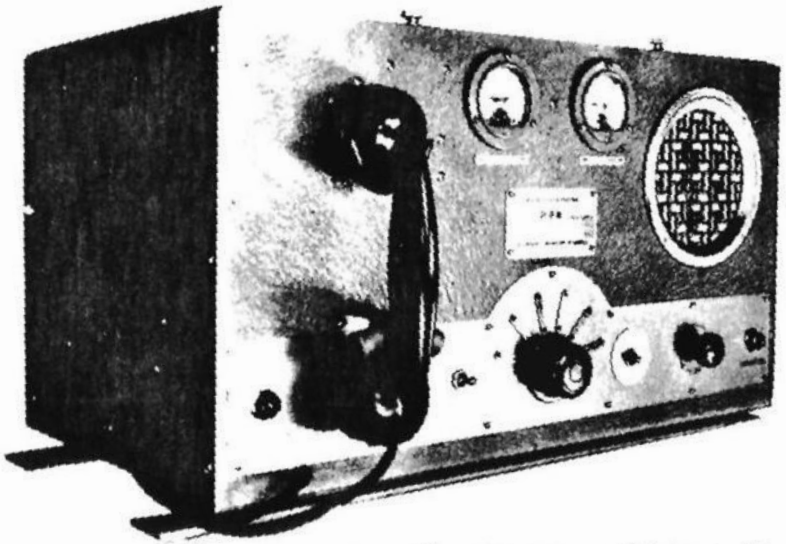


MODEL ET-8009-A RADIOTELEPHONE EQUIPMENT
600 WATTS, 4140 TO 17680, 5 BANDS

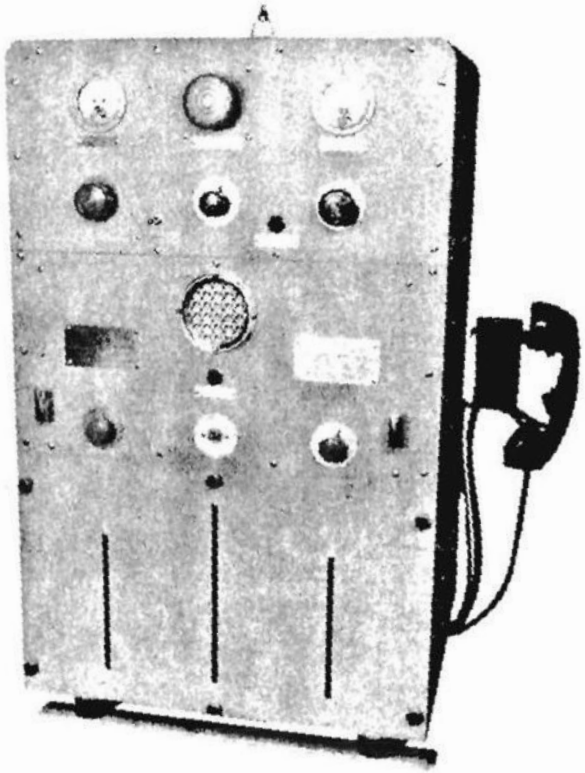


MODEL ET-8022 RADIO TELEPHONE

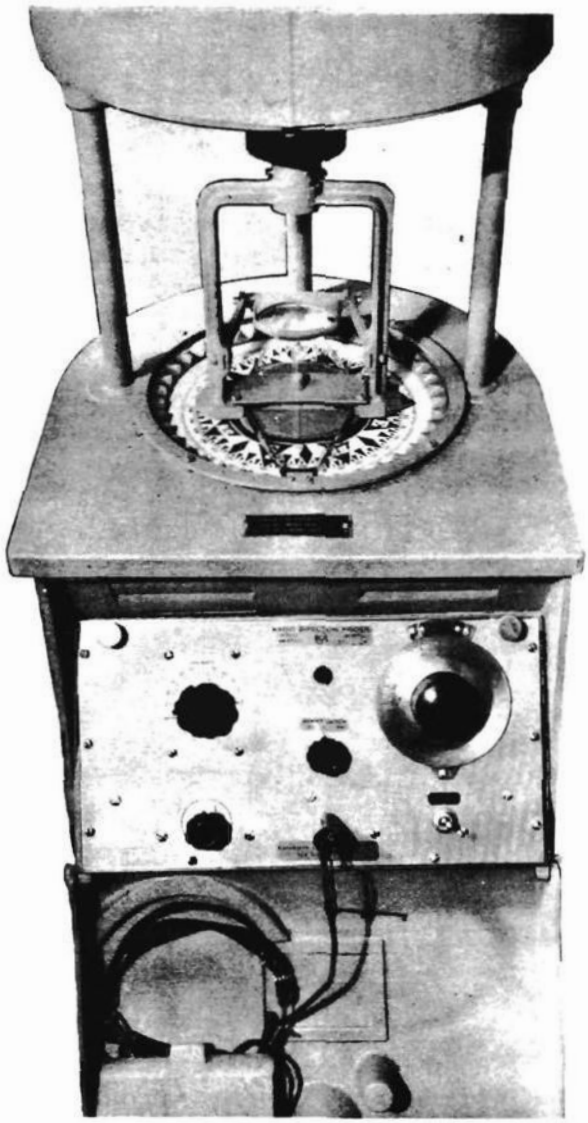
MODEL ET-8020 RADIO TELEPHONE
and
SPEAKER-BELL UNIT
100 WATTS, 2000 TO 9000 KC.



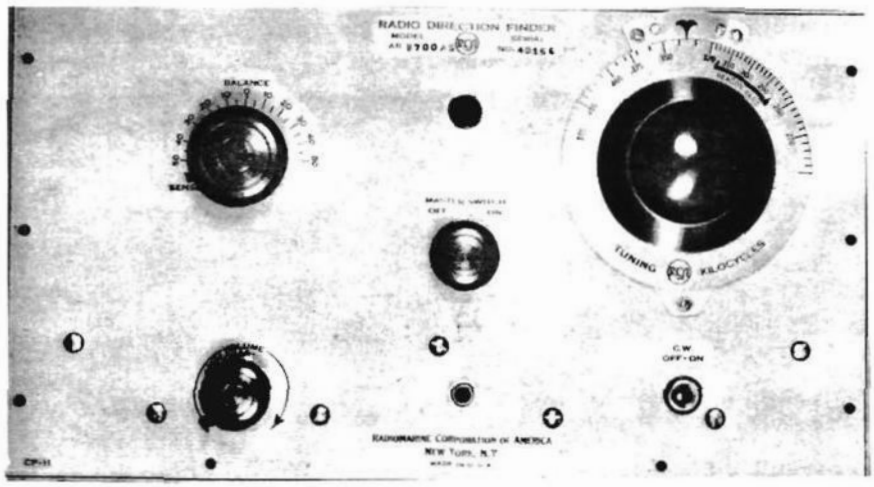
MODEL ET-8021 RADIO TELEPHONE



ET-8012-B RADIOTELEPHONE
75 WATTS, 2000 TO 3000 KC.

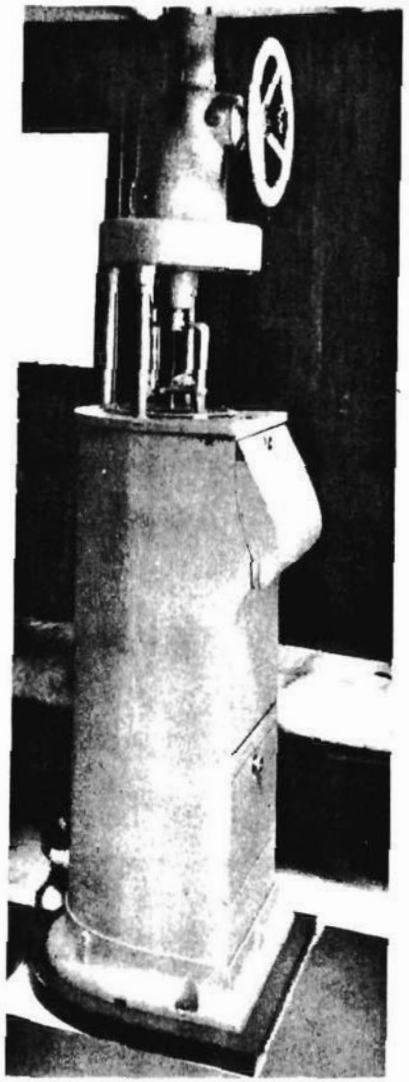


MODEL AR-8700S
RADIO DIRECTION FINDER

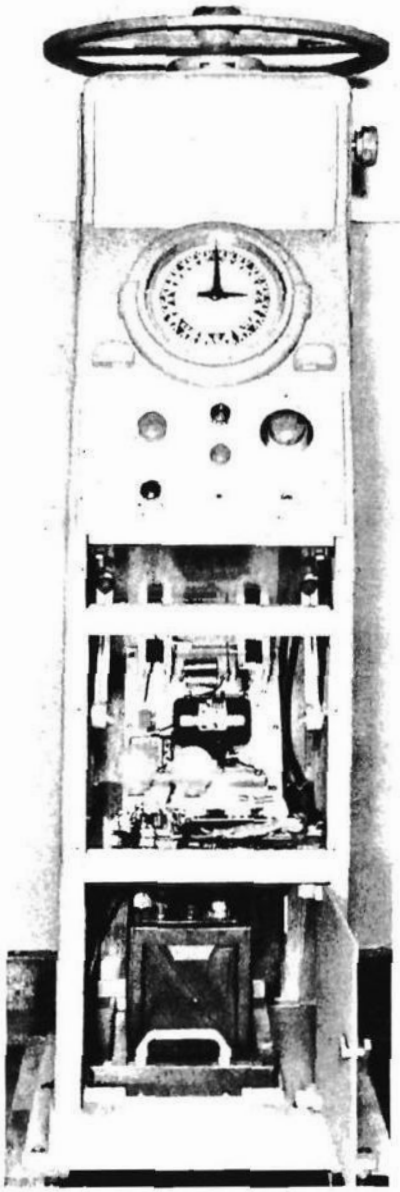


MODEL AR-8700 AS
DIRECTION FINDER CHASSIS

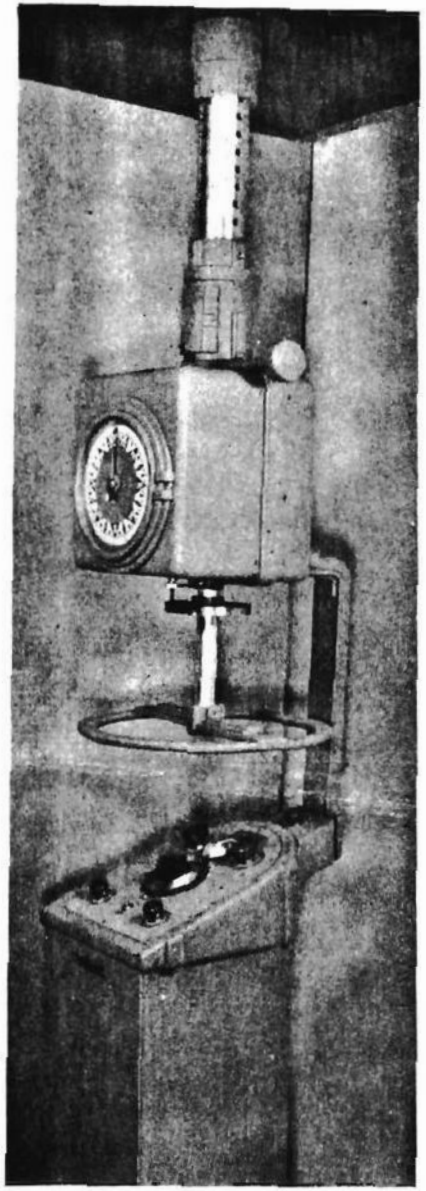
MODEL AR-8703-B
RADIO DIRECTION FINDER



MODEL AR-8703-A
RADIO DIRECTION FINDER



MODEL AR-8703-B
RADIO DIRECTION FINDER



MODEL AR-8707
RADIO DIRECTION FINDER