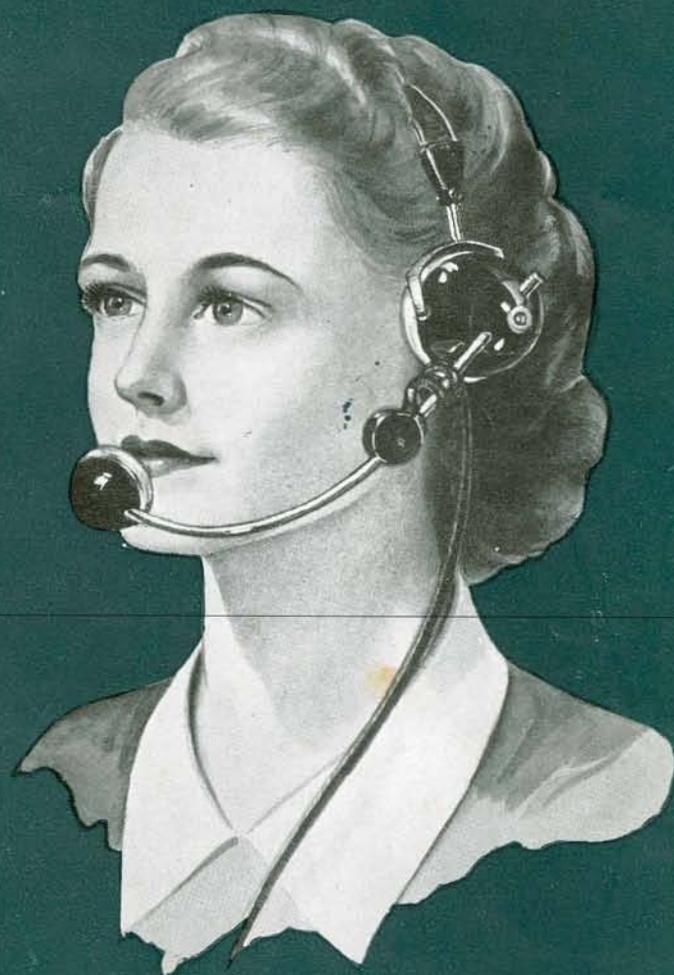
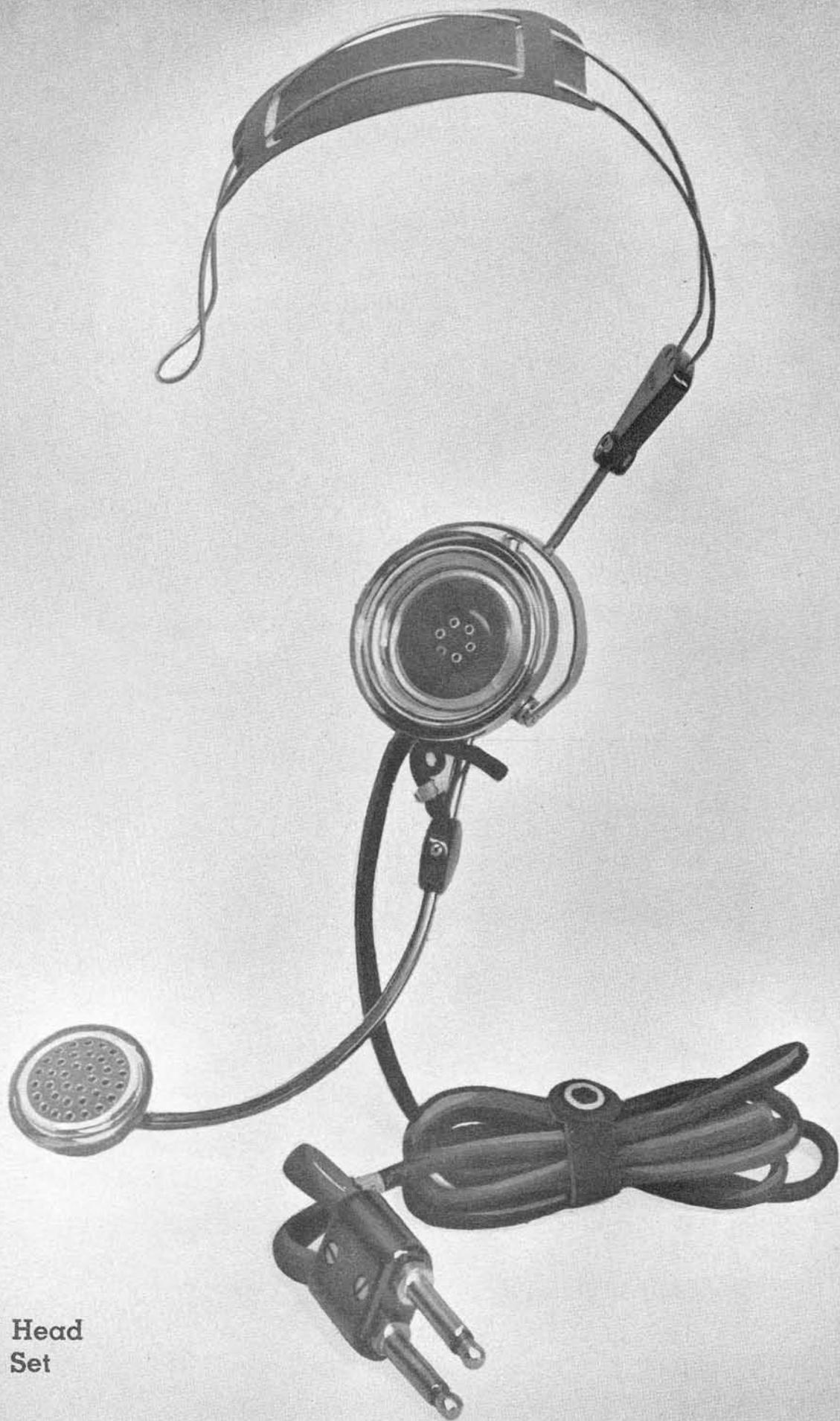


52 TYPE

HEAD TELEPHONE SET



Western Electric



No. 52-AW Head
Telephone Set

New Type Head Telephone Set

A new type of head telephone set has been made available for use by operators, which provides greater comfort for the wearer and better transmission than the present chest type transmitter, receiver and head band. The new set is of a one-piece type with the transmitter mounted on an arm attached to the back of the receiver case. While the entire set is, therefore, carried on

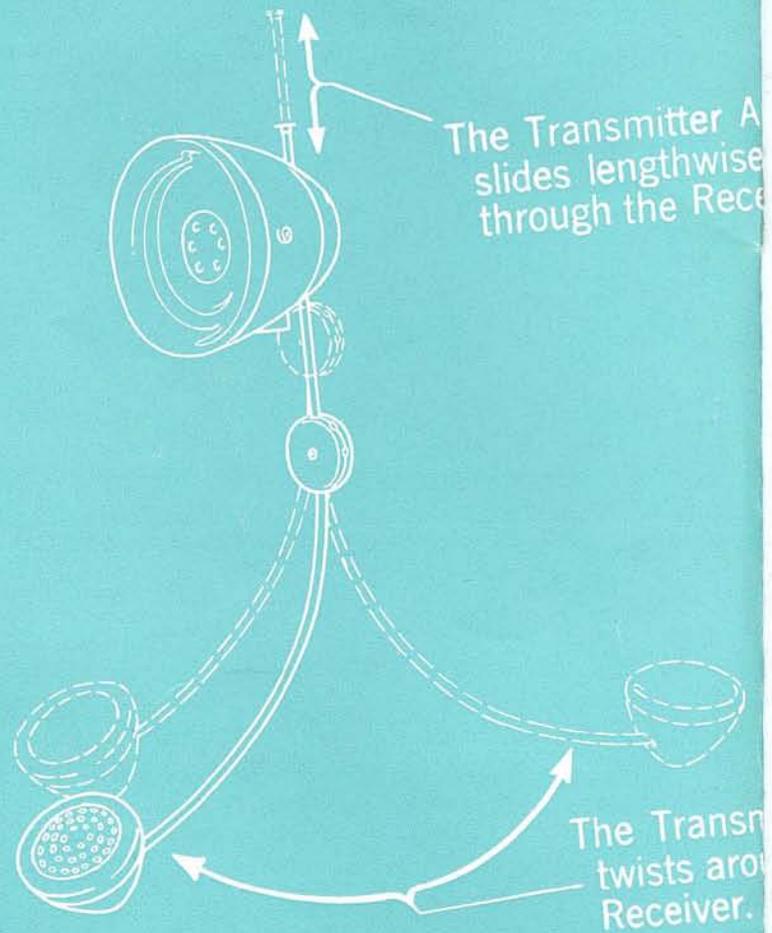
the head by means of the head band, its total weight on the head is about 6 oz., excluding the cord. The receiver impedance at 1000 cycles is approximately 300 ohms, and its d-c resistance approximately 65 ohms. The transmitter unit is designed for common battery applications and when used with a local battery a series resistance must be employed.

Among the Distinct

ADVANTAGES

provided by this set are the following:

1. The distance between the mouth and the transmitter is not changed when the head of the wearer is moved. This gives greater freedom of movement and eliminates the transmitting volume losses which occur with a chest type transmitter when the head of the wearer is moved from the mouthpiece, as when consulting records.
2. The set does not obstruct the vision.
3. Experience in service has shown that the set is more comfortable due to the elimination of the chest plate, neck band and the better fit of the head band and receiver cap. This also reduces clothing wear since there is no friction from the chest plate or neck band.
4. Switchboard supervisors can move the transmitter aside when not in use.
5. The set is attractive and of modern design.



Although the lighter weight design of this set makes it more fragile than a chest plate type transmitter and head receiver, the improvement in efficiency and comfort to the user merits observing the simple directions for proper adjustment, which are included with the set.

FIELD OF USE

For Common Battery Switchboard Application:

The No. 52 type Head Telephone Set is suitable for operator use at all switchboards, desks and PBX positions. It is a satisfactory replacement for the 396-716 transmitter-receiver combination currently used.

For the range of operating room noise and circuit noise conditions usually encountered, effective transmission and reception gains are obtained. These result from improved frequency response characteristics of the new instruments and elimination of the mouthpiece on the transmitter.

There are four models of the new head telephone set, namely, the No. 52AW which is suitable for all operators; the No. 52BW for supervisors; the No. 52DW for night operators; and the No. 52CW for special airport use. Where both operators and supervisors are employed, it is recommended that they all be equipped with the new sets at the same time because the resistance of the new transmitter is considerably lower than that of the No. 396 and excessive losses would, therefore, be encountered

m
iver.

The Transmitter
turns around
the Arm



The Transmitter Arm
swings to and fro on
the Receiver.

mitter Arm
nd in the

Drawing of the Head Telephone Set
Showing How the Transmitter Arm May Be Moved

if the two types were bridged together on the same circuit.

For Local Battery Switchboards or Railway Train Dispatching Application: While the No. 52 type Head Telephone Set was primarily designed for common battery service, it may be used by operators of local battery switchboards or at railway train dispatcher positions. In the latter case, its performance should be equal, or superior to that of the 650B-716B transmitter-receiver combination under ordinary operating conditions, with greater comfort to the wearer. A definite transmission improvement will be noticeable where dispatchers are accustomed to holding their transmitter mouthpiece further than two inches from their lips, since the new set, when properly adjusted, will not permit such a separation.

An exact comparison of the No. 52 type set with the 650B-716B transmitter-receiver combination on train dispatching lines is not feasible since overall transmission depends not only on the comparative frequency response of the instruments and their relative efficiency, but also on the telephone circuit, and, since the transmitter of the No. 52 type set can be adjusted for optimum talking distance, it depends on talking habits.

On the average, however, about equal loudness at the receiving station will be obtained when the distance from the speaker's lips is about $\frac{1}{4}$ " from the transmitter of the No. 52 type set, as when this distance is about 2" to the mouthpiece of the No. 650B transmitter. Hence, on long and heavily loaded circuits and where it is necessary to talk closer than

about 2" from the No. 650B transmitter to deliver adequate receiving level at way stations, the adequacy of the No. 52 type set may be questioned, and it should be tried in such cases before its use is adopted. On short and lightly loaded circuits or circuits well equipped with repeaters it should give improved transmission.

For local battery operation, it will be necessary to connect a resistance in series with the battery supply to prevent overheating and damage to the transmitter. To neutralize the slight loss of transmission introduced by this resistance, an electrolytic condenser wired across it is recommended where heavy loading of a dispatching line would make any loss objectionable. The resistance and capacity values recommended for various voltages are as follows:

Talking Battery Voltage	Resistance	Condenser Capacity
3.0 V	10 ohms	300 mfd.
4.5 V	15 ohms	200 mfd.
24.0 V	200 ohms	20 mfd.

The higher battery voltages are preferable to the lower battery voltages. If electrolytic condensers are employed, correct polarity with respect to the battery should be observed. The current through the transmitter, under the above conditions, is approximately 0.1 ampere.

DETAILED DESCRIPTION

The No. 52AW set consists of the following components:

- 1 No. 55AW Transmitter Arm
- 1 N-1 Transmitter Unit
- 1 No. 10A Receiver Holder
- 1 HC3 Receiver Unit
- 1 No. 15A Head Band and P-477139 Head Band Pad
- 1 L4AG Cord
- 1 No. 289A Plug
- 1 P-478356 Cord Fastener

The transmitter and receiver cases and the transmitter terminal plug are made of black thermoplastic material, and the transmitter and receiver caps are made of the same material but are transparent.

The No. 55AW Transmitter Arm consists of a transmitter case and a stainless steel tube on which the transmitter terminal plug is mounted. Contact with the transmitter unit is made by springs inside the case. Leads are carried inside the arm from these springs to the transmitter terminal plug.

The N-1 Transmitter Unit is of the direct action type and is held in the case by the cap. Concentric rings at the base make electrical contact with the springs in the case.

The No. 10A Receiver Holder consists of a receiver case with contact springs inside for the receiver unit, terminal accommodations for the receiver leads, and a friction joint. The friction joint allows the tube of the transmitter arm to turn and to slide lengthwise when adjusting the distance between the transmitter and receiver.

The HC3 Receiver Unit is similar to the HA1 unit (Bell System Hand Set Receiver Unit) but is smaller, lighter and more efficient. These features were accomplished by several improvements in design which were made possible by the development of new alloys having special magnetic properties. The impedance of this unit is approximately 300 ohms at 1000 cps and its d-c resistance is about 65 ohms.

The No.15A Head Band which is also available as a separate item, has a number of adjusting features for size and head contour. The length of the wires which clamp across the head can be adjusted individually and the pin of the yoke holding the receiver can slide lengthwise. This headband, although designed primarily for use with the No. 52 type Head Telephone Set, may be used with the No. 528 and other Head Receivers of that type by bending the yoke to fit.

The P-477139 Head Band Pad consists of a flat fibre sheet which is threaded on the wires of the head band. A relatively large size pad is employed to avoid concentrated pressure on one area of the head.

The L4AG Cord is furnished with the No. 52AW Set and is black mercerized cotton covered, 5 feet long, finished at the plug end for a No. 289A Plug.

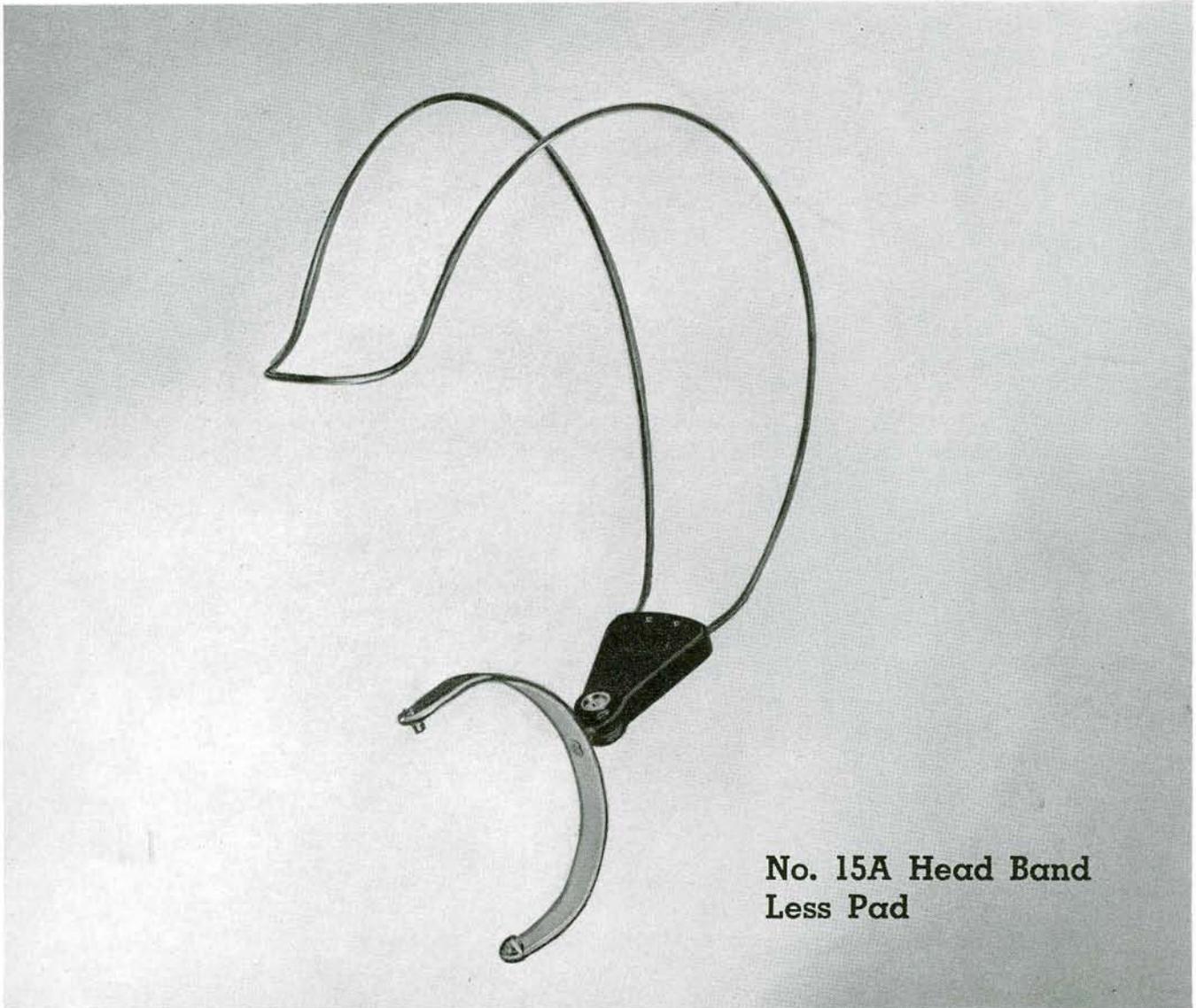
The No. 289A Plug is a flexible twin double plug with a black shell constructed with sufficient play between the jack plug bodies to take up any variations between the jack centers, and so arranged that

each plug body may be turned 90 degrees in the shell to present a new surface for wear. This plug is interchangeable with the No. 137 Plug.

The No. 52BW Set, which is for use of supervisors, is the same as the No. 52AW Set except that it is equipped with an L4AH retractile brown mercerized cotton covered cord. This cord has a normal extended length of 10 feet which closes into a uniform helix approximately 3 feet long. It is finished at the plug end for a No. 289A Plug. Near the other end it is equipped with a No. 29A Connecting Block, a KS-8010 Transmitter Cut-out Switch and a sleeving which acts as a wrist loop. The No. 29A Connecting Block is designed to permit a second listener to plug

in by the use of an R2DM Cord and a receiver. The No. 52DW Set is for use of night operators and is similar to the No. 52AW Set except that it is equipped with an L4AK retractile brown mercerized cotton covered cord. This cord has a normal extended length of 15 feet which closes into a uniform helix approximately 3 feet long. It is finished at the plug end for a No. 289A Plug. Near the other end a sleeving is attached to form a wrist loop.

The No. 52CW Set is designed for special installations at airports. It is similar to the No. 52AW Set except that it is equipped with an HC-4 Receiver Unit whose impedance is double that of the HC-3 Receiver Unit.



**No. 15A Head Band
Less Pad**

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