4-TYPE BUZZERS
REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers 4-type buzzers.

1.02 This section is reissued to include the 4E and 4F buzzers and to add the adjusting procedures to reduce the tone.

1.03 Reference shall be made to Section 020-010-711 covering general requirements and definitions for additional information necessary for the proper application of the requirements listed herein.

2. REQUIREMENTS

2.01 *Cleaning:* Contacts and other parts shall be cleaned when necessary in accordance with Section 022-100-811.

2.02 ***Tightness of Screws and Locknuts***

(a) ***The screws and locknuts*** shall be sufficiently tight to maintain their adjusted position.

(b) ***Other Screws:*** Mounting screws shall be tight.

2.03 ***Electrical Requirements***

(a) The buzzer armature shall vibrate steadily on 16-2/3 or 20-cycle ringing current supply when the buzzer is mounted and connected in the circuit in which it is used.

(b) With the same adjustment as specified in (a), the 4C buzzer shall operate on 24 volts dc when connected in series with a non-inductive resistance of 1000 ohms.

Note: The buzzer is adjusted in the shop to operate in only two positions, horizontal and vertical. The 4B, 4C, and 4F buzzers are adjusted in vertical position with fulcrum end down, the 4E buzzer with fulcrum end up. If the buzzer is mounted in the circuit in some position other than these two, it may require some readjustment on receipt from the shop.

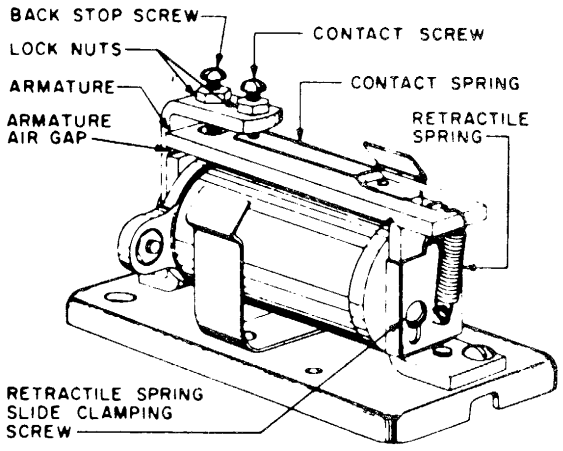

Fig. 1 – 4-Type Buzzer (4C buzzer, with cover removed, illustrated)

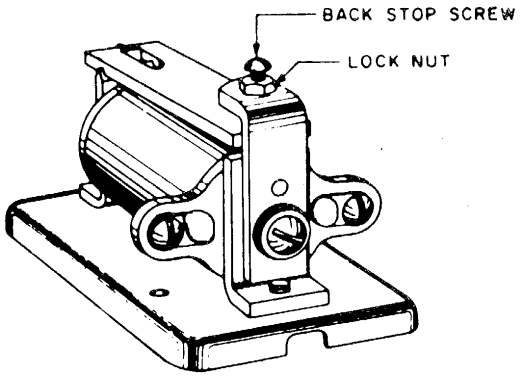

Fig. 2 – 4-Type Buzzer (4B buzzer illustrated)

3. ADJUSTING PROCEDURES

3.001 *List of Tools and Materials*

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
48	Combination 7/32- and 1/4-Inch Double-End Socket Wrench and Screwdriver
KS-6015	Duckbill Pliers
MATERIALS	
—	1000-Ohm Noninductive Resistance

3.01 *Cleaning* (Reqt 2.01)

(1) Clean contacts and other parts when necessary as covered in Section 022-100-811.

3.02 *Tightness of Screws and Locknuts* (Reqt 2.02)

3.03 *Electrical Requirements* (Reqt 2.03)

General

(1) Failure of the buzzer armature to vibrate steadily is usually due either to loose connections, broken leads, loose backstop or contact screws, or excessive or insufficient retractile spring tension. It will be necessary to balance the armature travel and the retractile spring tension against each other. In checking for any of the above conditions on the 4C buzzer, remove the cover.

(2) When testing the 4C or 4F buzzer, connect the leads as follows. See Fig. 3.

BUZZER	CURRENT	CONNECT TO
4C and 4F	ac	Spoolhead terminals
4C	dc	Free spoolhead terminal and base
4F	dc	Free spoolhead terminal and pole piece

(3) *Wiring:* Determine whether or not the leads to the buzzer terminals are broken and whether or not there are any loose connections.

(4) *Loose Locknut:* Failure of the contact screw or the backstop screw to be held firmly in place will result in the buzzer armature vibrating unsteadily. To correct this condition, tighten the locknut by turning it as far as possible in a clockwise direction with the socket wrench of the 48 combination wrench and screwdriver.

Failure to Operate

(5) If no leads are broken and all connections are tight and the armature fails to show any tendency to move toward the core when the circuit is closed, it is an indication that the armature travel or the retractile spring tension is excessive.

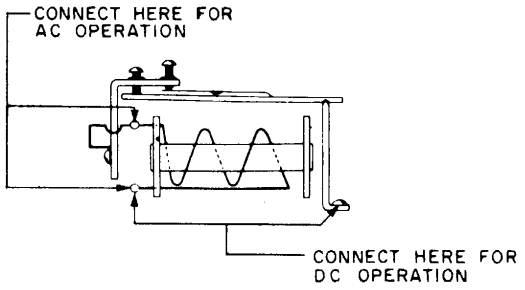

Fig. 3 – Connections to the Buzzer for AC and and DC Operation

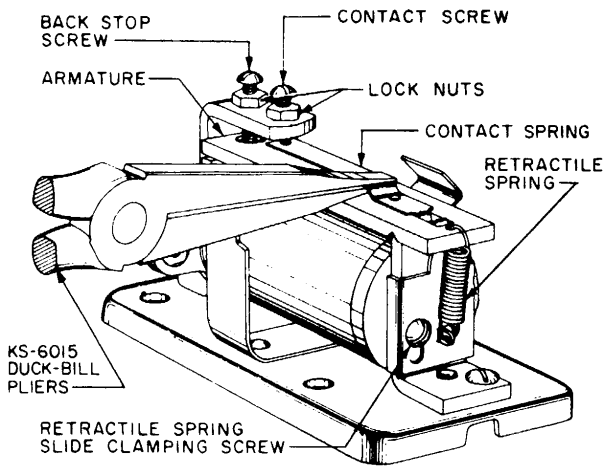

Fig. 4 – Method of Adjusting Contact Springs With Duckbill Pliers

(6) If the armature travel is excessive, reduce it as follows. Loosen the locknut on the backstop screw by turning it in a counterclockwise direction with the wrench and then turn the screw in a clockwise direction with the screwdriver of the 48 combination wrench and screwdriver until the travel is such that the buzzer operates satisfactorily when the circuit is closed. When the backstop screw has been set in the proper position, fasten the locknut securely by turning it in a clockwise direction. In the case of the 4C or 4F buzzer, it should be noted at this time that, when the armature is moved against the core, there is an appreciable separation between the contact spring and the back contact. Any adjusting of the contact spring should be done with a pair of duckbill pliers applied as shown in Fig. 4.

(7) If the armature travel is satisfactory, failure to operate is probably due to excess tension of the retractile spring. Reduce the tension of the spring by loosening the retractile spring slide clamping screw with the screwdriver of the 48 combination wrench and screwdriver and by moving the slide up as required.

Failure to Release

(8) Failure of the buzzer armature to vibrate steadily may be due to the armature travel being too small or may be due to insufficient tension of the retractile spring, thereby causing the armature to stick against the core when the circuit is closed.

(9) If the armature travel is insufficient, increase it as follows. Loosen the locknut as indicated in (6) and then turn the backstop screw in a counterclockwise direction with the screwdriver until the travel is such that, when the circuit is closed, it will give a satisfactory signal. In this case, as previously specified, when the proper setting of the backstop screw has been obtained, fasten the locknut securely so as to prevent the backstop screw moving out of position; in the case of the 4C or 4F buzzer, note that when the armature is against the core there is an appreciable separation between the contact spring and the back contact.

(10) If the armature travel is satisfactory, the failure to release is probably due to insufficient tension of the retractile spring. To increase the tension of the spring, adjust the retractile spring slide down as covered in (7).

Reduction of Tone

(11) Reduce the volume by using one or more of the following procedures.

(a) Reduce the armature airgap as covered in (6).

(b) Reduce the retractile spring tension as covered in (7).

(c) Mount buzzer on cushion pad of felt, sponge rubber, or similar material.

After making the necessary adjustments, recheck the operation of the buzzer.